The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees.

VOL. XXXVII. CHICAGO, ILLINOIS, NOVEMBER 30, 1901. No. 22.

Address.

CHAIRMAN'S ADDRESS.

DELIVERED BEFORE THE SECTION ON PATHOLOGY AND BACTERIOLOGY, AT THE FIFTY-SECOND ANNUAL MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

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CHICAGO.

A provision in the constitution makes it incumbent upon the chairman of each Section to deliver an address at the beginning of the annual meeting. In this address he shall set forth the progress of the year in the field covered by the particular Section. The day for formal addresses of this sort is rapidly passing away, and I shall not attempt a detailed review of the progress in pathology and bacteriology during the past twelve months. That the American Medical Association has assumed the sponsorship of a separate section in these branches is, I think, evidence of the general progress that pathology and bacteriology are now making in this country. Societies and separate sections, like hypotheses, are not to be multiplied beyond necessity, but criticism of the tendency to multiply medical societies is hardly applicable to this case because it is an effort to extend the usefulness and influence of a large, national organization of great strength.

It is true, as has been said by others, that much of the work in pathology and bacteriology should be brought out in the clinical sections, that our members should cooperate with the clinicians. Properly managed, our section will help, not hinder this co-operation, because at the same time as we may participate in other sections there is now an opportunity to discuss questions of special interest to pathologists and bacteriologists, an opportunity that it is hoped will bring together each year a group of men of common interests. The constitution and by-laws of the Association give to each section virtual autonomy. This section has the power to regulate its own workings to its best advantage. Experience will soon demonstrate the directions that efforts should take in order to utilize fully the opportunities offered for mutual exchange of opinion, for diffusion of the results of investigation, and of new methods. Special effort should be made at this early stage in the history of the section to secure accurate minutes of the proceedings and to exercise careful scrutiny of the material published in THE JOURNAL as read at our meetings.

The pathologic exhibit which is now in the hands of the section, offers an unexcelled opportunity for the demonstration, to large numbers, of specimens, apparatus, methods of working and of teaching. Naturally, the territory tributary to the place of meeting may be expected to be most largely represented in the annual exhibit. We owe a large debt of thanks to Dr. Frank B. Wynn, the Secretary of the Section, who as Chairman of the Committee on Pathologic Exhibit has shown an unusual ability for the work, the results of which speak for him more strongly than my words.

It has been said recently by competent authority that the opportunities for scientific work in pathology and bacteriology are now highly developed in this country. No one familiar with the situation will take exception to this pleasing statement. Much remains to be done, however, in properly organizing the work in pathology and bacteriology in the various centers. The relations of the teachers of these branches in many of the colleges are, I believe, far from satisfactory. This is also true in regard to the pathologic work in the majority of our public hospitals of various kinds. Unfortunately, the present mode of management is not always conducive to the development in them of a scientific spirit, and the public governing bodies have yet to learn that the pathologist is as worthy of a hire as any other laborer. It is clear, too, that the best interests of pathology and bacteriology demand that bodies now scattered should be organized; much teaching that can be better done and better paid in a single institution has been divided among several, none of which, perhaps, can offer inducements to keep good men permanently. Yet the possibilities for careers in pathology and bacteriology in this country are rapidly equaling in opportunity and reward those of older countries and of other sciences in this country.

An encouraging feature is the steadily increasing interest manifested in medicine by our universities. The modern American university is fast becoming, as it ought to be, a factory of new knowledge in which research and criticism flourish and in which culminate the tops of the waves of progress. The establishment in these very days of the Rockefeller Institute of Medical Research is of special significance as an indication that private wealth is about to become the patron of scientific medicine to a degree heretofore unrealized. Let us hope that the future productive scholarship in pathologic and cognate fields in our country may find suitable opportunity for expression in the proceedings of this section in which we trust the pervading atmosphere may be scholarly throughout.

Original Articles.

EFFECT OF DIRECT, ALTERNATING, TESLA CURRENTS AND X-RAYS ON BACTERIA.*

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CHICAGO.

The subject of this study is one that does not seem to have received the attention it merits. The most extravagant claims for and against the effect of various electrical currents have been made in the past. If we are to judge from the vague statements in the current text-books on bacteriology and electro-therapeutics, it becomes evident that further investigation and experimental work are necessary for a more exact knowledge of this interesting and practical subject. I have carefully examined most of the text-books on bacteriology and electro-therapeutics and find but few which mention the subject at all.

On the other hand, we find in the literature numerous cases where the germicidal action of various electric currents seems to have been clinically proven, and where "electricity" is claimed to have cured certain cases. Are these cures only due to the production of antiseptics and germicides by electrolysis? Can any of the various electric currents have any bactericidal or antitoxic properties without electrolysis or heat? Can any tissue changes be caused without electrolysis or heat by electric currents which may cause the death of the bacteria?

How does a magnetic field affect bacteria? What effect have Röntgen rays upon bacteria?

These questions are of the greatest importance in the practical applications of electro-therapeutics in certain infectious conditions. If the effect is a purely chemical one and the current only produces antiseptics by electrolysis, we might as well use these in many cases directly without the current. The same might be said of the physical effects of various currents—heat.

This electrolyitic process of sterilization was employed by Hermite and Webster for sterilization of sewage in 1894, making use of Watt's observation,[1] of 1859, that solutions of magnesium chlorid are converted into hypochlorite, which remains in solution as hypochlorous acid and produces a deposit of magnesium hydrate. Hermite mixed the sewage with sodium chlorid—sea water—and produced hypochlorite by electrolysis. Webster[4] adds chlorids to sewage and uses iron plates as electrodes. The ferrohydroxid produced by electrolysis might as well be added directly to the sewage. Similar processes have since been devised by Oppermann,[2] Marmier and Abraham,[3] Bergé, Hagen and Woolf.

EFFECT OF CONTINUOUS OR DIRECT CURRENT.

Cohn and Mendelssohn[5] in 1879 report that in their experiments the alternating current had no effect, whereas the continuous current caused rapid multiplication of bacteria.

Apostoli[6] studied the antiseptic action of electric currents in 1885, and in 1890 he, together with Laguerriere,[7] reported the results of their experiments to the Paris Academy. Numerous animal experiments were made with bouillon cultures, which were kept at a low temperature by ice. When the current employed was less than 50 milliamperes the virulence of the bacteria was increased at the positive pole only; 300 milliamperes killed anthrax bacilli in five minutes at the positive pole,[6] and 100 to 150 milliamperes were already bactericidal for bacteria without spores.

Prochownik[8] in 1890 treated acute gonorrhea in the female by placing a copper electrode—positive pole—into the cervix and allowing a current of 80 to 100 milliamperes to flow for ten minutes. After three treatments all gonococci had disappeared from the discharge.

Prochownik and Spaeth[9] in 1890 were unable to destroy bacteria by simply dipping the electrodes into the culture medium. They were successful by employing copper electrodes covered with agar and dipped into sodium chlorid solution. Staphylococci and streptococci were killed in fifteen minutes at the positive pole by a current of 60 to 80 milliamperes. Anthrax bacilli with spores required 200 to 230 milliamperes for from one-half to one hour. They attribute the result to the liberation of chlorin.

Verhoogen[10] in 1891 found that the continuous current can only destroy bacteria by chemical or physical effects. If the medium can undergo electrolysis the bacteria die by germicidal acids produced at the positive pole and alkalies at the negative pole. Hydrogen *in statu nascendi* also injures aërobe bacteria at the negative pole. If the medium can not undergo electrolysis the death of bacteria is due purely to physical effects (heat).

Charrin[11] in 1892 dipped copper electrodes into potassium iodid solution and into serum which contained bacilli pyocyanei. A current of 37 to 40 milliamperes destroyed the pigment formation in seven minutes. Longer application of the current destroyed the bacteria by producing iodic acid in the potassium iodid solution and chlorate of copper in the serum.

Kruger[12] in 1893 tried to exclude the chemical and physical effects of continuous currents. By the advice of DuBois-Reymond he employed a method of non-polarizing electrodes, which consists of amalgamated zinc plates in a solution of sulphate of zinc. If a current is allowed to pass through this cell for some time and the current is then suddenly broken, applying the wires leading from the amalgamated zinc plates to a sensitive galvanometer, no deflection of the needle in an opposite direction takes place, which is always the case when other metals or solutions are employed.

Kruger used two glass tumblers filled with zinc sulphate solution, each tumbler containing an amalgamated zinc plate electrode. The bacterial culture was contained in an U-tube of 2 cm. diameter, closed at both ends by a membrane, through which the current had to pass when the two tumblers were connected by the inverted U-tube. The current of 30 Siemens cells was passed through this apparatus, producing an initial current of 80 milliamperes, which rapidly fell to and remained at about 20 milliamperes. If the U-tube contained three days' old bouillon cultures of bacillus pyocyaneus, bacillus prodigiosus or vibrio choleræ Asiaticæ a heavy precipitate of albumin (?) resulted, but the bacteria were not killed after passing the same current for 72 hours through the apparatus. He concludes that the current itself may prevent growth, although it may not kill bacteria. When electrolysis is allowed to take place by passing the current directly through the culture medium he found that any strength of current will destroy bacteria if it is of the proper density and employed long enough. By a current of 20 milliamperes for 24

* Read at the Fifty-second Annual Meeting of the American Medical Association in the Section on Pathology and Bacteriology, and approved for publication by the Executive Committee: Drs. W. T. Howard, D. E. Salmon and W. G. Spiller.

hours he was able to kill the pneumococcus, bacillus murisepticus, bacillus tuberculosis and spore-bearing anthrax and tetanus bacilli. He attributes this result to a combined effect of the current as such and the effect of the ions, the formation of chlorin at the positive pole and its combinations with oxygen, like hypochlorous acid. He found that pure cultures of the pneumococcus and vibrio choleræ Asiaticæ could be employed for immunization after sufficient electrolytic effects of continuous currents.

Smirnow[13] in 1895 claimed that electrolysis of a diphtheria culture changes the toxin into antitoxin when the acidity at the positive pole has reached 0.9 to 1.9, which possesses the same properties as the serum of the immune horse. These experiments were repeated and the results verified by Kruger.[14]

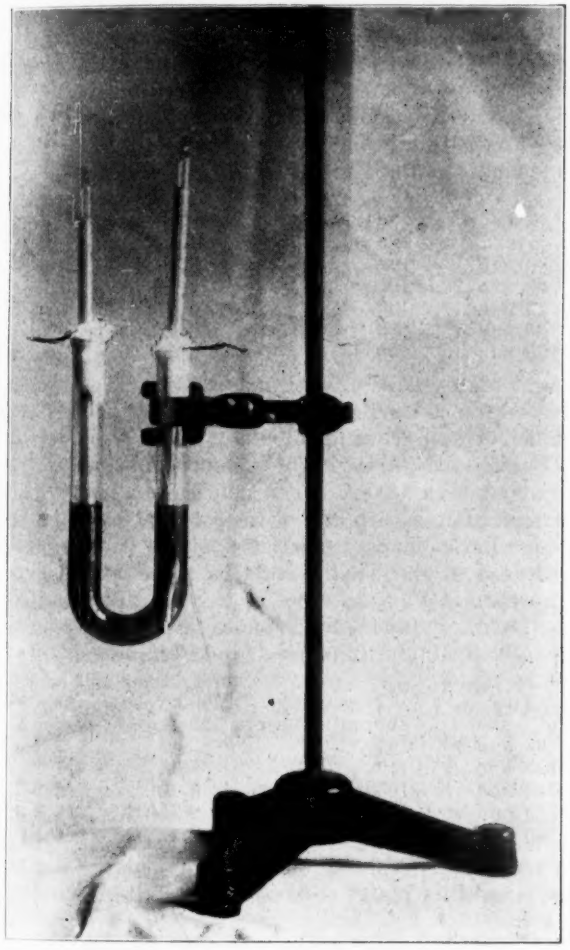

Fig. 1.—Effect of continuous currents on bacteria. Electrolysis and heat. U-tube culture with platinum electrodes.

Friedenthal[15] in a critical review of the literature of the subject up to 1896 concludes that electrolysis and heat alone destroy bacteria. Electricity acts likes light, which also destroys bacteria only by the formation of antiseptic substances.

Experiments.—Of the numerous experiments I made to determine the part which the continuous electric current plays in the destruction of bacteria, I will give here only a few of the most representative ones, to illustrate the physical effects of the current—heat—and the chemical effect—electrolysis—and the results when both of these factors are reduced to a minimum. In most of the experiments for studying the physical and chemical effects of the current, fresh bouillon cultures were used in glass tubes of a diameter of 16 mm., bent in the form of an U, of a height of 150 mm., and 42 mm. from center to center, supplied with platinum leaf electrodes 10 mm. by 50 mm., attached to platinum wires, as shown in photograph (Fig. 1). Each arm of the U-tube was supplied with a thermometer, to the mercury bulbs of which the platinum leaf electrodes were fastened by thin rubber bands.

Effect of High Temperatures Produced by the Current.—A twenty-four-hour bouillon culture (Fig. 1) of the bacillus pyocyaneus lost its green color entirely within 4 minutes, when a current of 260 to 320 milliamperes was allowed to pass through it. After 10 minutes it looked like clear bouillon and cultures taken from the fluid remained sterile.

Time.	Current.	Temp.	
	260 milliamperes.	23 C.	
2 min.....	280 "	35.5 C.	(Green color fades gradually.)
4 min.....	320 "	62 C.	(Green color disappeared.)
6 min.....	326 "	81 C.	

I had to interrupt the experiment here for 22 minutes because the foam in the arm with the positive electrode filled up to the cotton stopper, and pressed the bouillon up in the other arm to twice the level of the bouillon in the positive arm. When the current was started again it was:

	Current.	Temp.
	280 milliamperes.	65 C.
8 min.....	310 "	80.5 C.
10 min.....	320 "	98.5 C.

The positive arm was filled entirely with foam, the negative arm about three-fourths. The bouillon was clear and stood at a much higher level in the negative arm than in the positive one. Bouillon tubes were inoculated and agar plates poured from the contents of the U-tube, but remained sterile after 24 hours in the incubator.

A control U-tube, containing a bouillon culture of bacillus pyocyaneus was then treated to the same current for 10 minutes. The temperature was kept between 9 and 18 C. by immersing the U-tube in a dish with ice water. Cultures taken from both arms of this tube showed good growth. The same current was then passed for 10 minutes through another control tube which contained only bouillon. After this had cooled down to the temperature of the room it was inoculated with bacillus pyocyaneus and incubated for 24 hours, showing a fair growth at the end of this time.

The death of the bacillus pyocyaneus in the first experiment is plainly due to the physical effects of the current, that is, the production of heat. Bacillus anthracis and bacillus subtilis were not killed when exposed to the same current for the same length of time, because their thermal death point is higher than that produced by this current, whereas the thermal death point of bacillus pyocyaneus, as determined by Sternberg, is 56 C.

Effect of Electrolysis at Low Temperatures.—To determine the chemical effects of the current by electrolysis and the resulting bactericidal products, it was necessary to exclude the effect of heat.

The following experiments illustrate how the variations in time and current result in variations of antiseptic or bactericidal properties of electrolytic products in the culture. All heat effects are excluded. A current of 48 milliamperes for 3 hours has no bactericidal effect.

The electrolytic products are antiseptic but not germicidal. With a current of 100 milliamperes they become bactericidal to non-resistant forms of bacteria in 75 minutes and to anthrax spores in 2 hours. The same current for 3 hours had only an antiseptic effect upon subtilis spores.

1. Anthrax (Spore-bearing); 48 Milliamperes for Two Hours.

Time.	Current.	Temp.	Cultures.
	48.5 milliamperes.	28 C.	
15 min.....	50.5 "	33.7 C.	Good growth.
30 min.....	51.5 "	36 C.	Good growth.
45 min.....	49.5 "	36.7 C.	Fair growth.
	Experiment interrupted.		
Time.	Current.	Temp.	Cultures.
60 min.....	48 milliamperes.	23.4 C.	Poor growth.
75 min.....	46.5 "	26.5 C.	Poor growth.
90 min.....	47.5 "	30 C.	Very few colonies.
105 min.....	48 "	31.7 C.	Very few colonies.
120 min.....	48 "	32.8 C.	Very few colonies.

The current was interrupted for 5 minutes to take cultures between each reading. At the end of the experiment the bouillon looked perfectly clear. Ten loopsful plated out in agar gave four colonies. A control tube

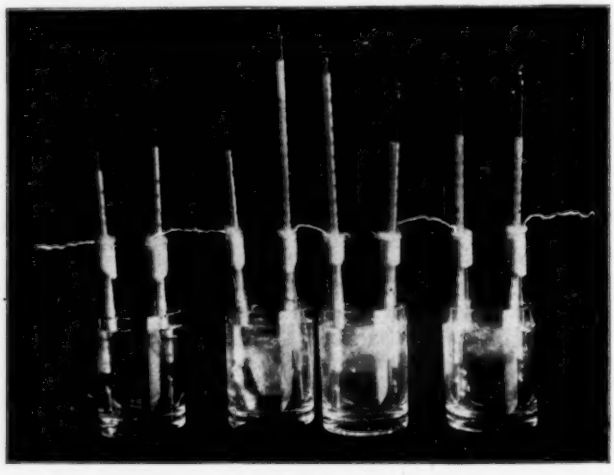

Fig. 2.—Effect of continuous current on bacteria. Electrolysis and low temperature. Four U-tube cultures with platinum electrodes, in series.

of bouillon treated in the same manner and inoculated with bacillus anthracis showed no growth after one night in the incubator, but when plated out many colonies grew upon the agar, showing that the electrolytic products were antiseptic but not bactericidal.

2. Staphylococcus Pyogenes Aureus and Albus, 48 Milliamperes, for Three Hours.

Time.	Current.	Temp.	Cultures.
	48 milliamperes.	27 C.	
15 min.....	48.5 "	33 C.	Good growth.
30 min.....	48 "	34 C.	Good growth.
45 min.....	48 "	32 C.	Fair growth.
60 min.....	48 "	30.2 C.	Fair growth.
75 min.....	48 "	31.8 C.	Very good growth.
90 min.....	48 "	32.3 C.	Very good growth.
105 min.....	48 "	31.3 C.	Very good growth.
120 min.....	48 "	32 C.	Fair growth.
140 min.....	48 "	32 C.	Good growth.
180 min.....	47 "	31 C.	Good growth.

A control tube of bouillon through which a current of 48 milliamperes was passed for 3 hours was inoculated with staphylococcus albus and showed no growth after one night in the incubator, but when plated out many colonies grew.

3. Bacilli Pyocyaneus, Typhosus, Anthracis and Subtilis.—With 100 milliamperes for 75 minutes, the temperature rose to 38 degrees C. in 20 minutes, so I resorted to cooling by ice water. The current was passed in series through the four U-tubes, which had been placed in glass tumblers containing ice water, as in photograph (Fig. 2).

Time.	Current.	Temperature. Pos. Pole.	Neg. Pole.
	100 milliamperes.	10 C.	6 C.
15 min.....	115 "	7.5 C.	4 C.
30 min.....	100 "	9 C.	6 C.
45 min.....	100 "	10 C.	5 C.
60 min.....	100 "	10 C.	10 C.
75 min.....	100 "	7 C.	5 C.

Agar plates were made of all tubes after 75 minutes, and incubated over night. The pyocyaneus and typhoid plate showed no growth, anthrax six small colonies and subtilis showed many well-growing colonies. Control tubes inoculated showed no growth with any of the four bacteria, but when plated out anthrax and subtilis plates showed many colonies.

4. Bacilli Pyocyaneus, Typhosus, Anthracis and Subtilis.—With 100 milliamperes for 120 minutes. The arrangement was the same as in the last experiment.

Time.	Current.	Temperature. Pos. Pole.	Neg. Pole.
	100 milliamperes.	9 C.	6 C.
30 min.....	100 "	10 C.	5 C.
60 min.....	100 "	10 C.	10 C.
90 min.....	100 "	3 C.	3 C.
105 min.....	110 "	8 C.	7 C.
120 min.....	100 "	7 C.	5 C.

Agar plates made of pyocyaneus, typhoid and anthrax tubes remained sterile, that of subtilis tube showed a fair number of well-growing colonies.

Control tubes through which a current of 100 milliamperes had been passed for 2 hours, showed no growth when inoculated with any of the four bacteria and incubated. Plates made from these control tubes remained sterile except the bacillus subtilis plate, which showed many colonies.

5. Bacilli Pyocyaneus, Typhosus, Anthracis and Subtilis.—With 100 milliamperes for 180 minutes.

Time.	Current.	Temperature. Pos. Pole.	Neg. Pole.
	100 milliamperes.	9 C.	6.5 C.
60 min.....	100 "	3 C.	3 C.
120 min.....	110 "	7 C.	7 C.
140 min.....	100 "	4 C.	4 C.
160 min.....	110 "	9 C.	6 C.
180 min.....	100 "	6 C.	6 C.

Pyocyaneus, typhoid and anthrax plates remained sterile, subtilis plates showed many well-growing colonies.

6. Staphylococcus Aureus, Bacilli Pyocyaneus, Prodigiosus and Anthracis.—With 130 to 150 milliamperes for 80 minutes.

Time.	Current.	Temperature. Pos. Pole.	Neg. Pole.
	125 milliamperes.	21 C.	20 C.
5 min.....	130 "	32 C.	27 C.
10 min.....	140 "	31.5 C.	30.5 C.

The prodigiosus culture became decolorized at the negative pole, and the pyocyaneus culture turned brown at the positive pole.

The current was interrupted after 10 minutes until the temperature of the cultures had fallen again.

Time.	Current.	Temperature. Pos. Pole.	Neg. Pole.
		23 C.	21 C.
20 min.....	130 milliamperes.	38 C.	30 C.

The temperatures again rose rapidly, so I had to interrupt current again for cooling. The foam collecting

upon the bouillon at the negative pole was red in the prodigiosus tube and green in the pyocyaneus tube, the bouillon in both tubes being decolorized.

Time.	Current.	Temperature. Pos. Pole.	Neg. Pole.
		23 C.	23 C.
30 min..	130-140 milliamperes.	37 C.	30 C.

All the U-tubes were now placed into tumblers with ice water to prevent the rapidly rising temperatures.

Time.	Current.	Temperature. Pos. Pole.	Neg. Pole.
		8 C.	8 C.
40 min.....	120 milliamperes.	12 C.	8 C.
60 min.....	130 "	11 C.	11 C.
70 min.....	130 "	12 C.	12 C.
80 min.....	130 "	15 C.	12 C.

All the tubes were now plated out with agar and remained sterile, except a few colonies on the anthrax plate, after 24 hours' incubation.

7. Staphylococcus Aureus, Bacilli Pyocyaneus, Prodigiosus and Anthracis.—With 130 to 150 milliamperes for 180 minutes.

Time.	Current.	Temperature. Pos. Pole.	Neg. Pole.
		6 C.	4 C.
30 min.....	130 milliamperes.	12 C.	8 C.
60 min.....	135 "	11 C.	11 C.
90 min.....	140 "	11 C.	10 C.
120 min.....	150 "	12 C.	11 C.
150 min.....	140 "	16 C.	19 C.
180 min.....	130 "	10 C.	8 C.

All the tubes were plated out on agar and remained sterile in incubator.

Control tubes through which the same current was passed for 3 hours had a strong odor of hypochlorous acid, and showed no growth when inoculated with the above bacteria. When these were plated out no growth took place.

Germicidal Substances at Positive and Negative Pole.—A series of experiments was now made to determine as far as possible the effect of the different bactericidal substances produced by electrolysis at the positive and negative pole in the culture. Museum jars having an inside diameter of 42 mm. and 130 mm. high were filled one-half with bouillon. An inverted U-tube was then made to connect the two jars, and the bouillon was drawn into the U-tube by a small rubber tube which was withdrawn when the bouillon arch was formed, without any air bubbles. Into each jar was placed a thermometer with platinum leaf electrode, 10 by 50 mm., which was fastened to the mercury bulb of the thermometer by a thin rubber band. The jars were then stoppered with cotton and the whole apparatus, which is shown in photograph, sterilized (Fig. 3).

The two jars were inoculated with spore-bearing anthrax bacilli and incubated at 37 C. for 24 hours.

Time.	Current.	Temperature. Pos. Pole.	Neg. Pole.
	95 milliamperes.	19 C.	19 C.
15 min.....	105 "	27 C.	25 C.

To prevent the rapidly-rising temperature at the two poles, the whole apparatus was placed into a potato dish containing water and ice, as illustrated by photograph, and the experiment continued (Fig. 4).

Time. Minutes.	Current. Milliamperes.	Temperature. Pos. Pole.	Neg. Pole.	Cultures. Pos. Pole.	Neg. Pole.
30	100	15 C.	15 C.	Good growth.	Good growth.
40	95	7.5 C.	7.5 C.	. . . . .	. . . . .
50	100	9 C.	9 C.	. . . . .	. . . . .
60	100	13 C.	14 C.	Few colonies.	Many colonies.
90	105	19 C.	17 C.	2 "	26 "
120	100	18 C.	18 C.	No growth.	No growth.

The culture fluid had a strong acid reaction at the positive pole and an odor of hypochlorous acid.

At the negative pole the reaction was strongly alkaline, requiring 8.82 milligrams of H_2SO_4 to neutralize 1 c.c. of the culture fluid.

The two cultures were shaken and plated out in agar, but no growth resulted from either jar. After 24 hours I again made plates which also remained sterile.

A control experiment was made by passing 100 milliamperes through three similar contrivances for 2 hours, at 31 to 36 C., after which the bouillon was inoculated with bacilli prodigiosus, pyocyaneus and anthracis and placed in the incubator.

All remained sterile, and, when I plated them out, no growth took place, showing that the germicidal substances produced in the bouillon by electrolysis were sufficient at both poles to kill these bacteria.

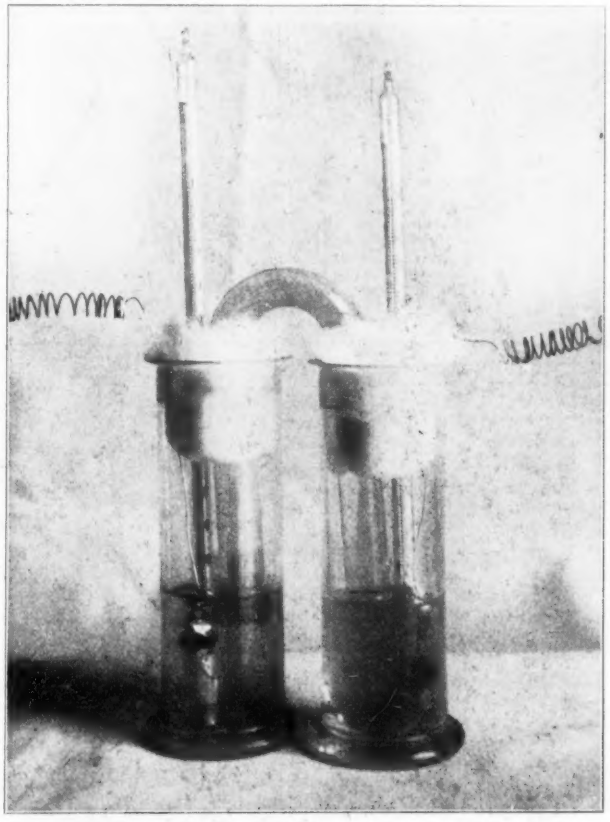

Fig. 3.—Effect of continuous current on bacteria. Germicidal substances produced at positive and negative poles. Culture jars connected by U-tube arch of bouillon. Platinum electrodes.

The bacillus subtilis in a former experiment had shown such marked resistance to the electrolytic bactericidal products of the current that I employed it here also to determine the effects of electrolytic products at the two poles. In a former experiment I was unable to kill the bacillus subtilis by a current of 100 milliamperes for 3 hours. Now I found that the bacillus subtilis was dead at the positive pole in 2 hours, whereas at the negative pole living bacilli or rather spores were still present after the current had passed 4 hours. The earlier death at the positive pole of anthrax and subtilis spores is due to the liberation of chlorin, which combines with oxygen to form hypochlorous acid.

At the negative pole, sodium in the presence of water, forms sodium hydroxid and liberates nascent hydrogen, which rises in numerous bubbles. These bactericidal

products of electrolysis are only present in the two jars. The bouillon arch is practically free from them.

Effect of Continuous Current Without Heat and Electrolysis.—Friedenthal[15] in his critical review of Kruger's[12] work in this direction, has already pointed out that it is illogical to attempt to prevent the influence of heat by cooling and the effect of electrolysis by the use of non-polarizing electrodes, because, if we eliminate both these factors, every influence of electricity is removed.

Kruger[12] maintains that the continuous current alone by means of non-polarizing electrodes and exclusion of chemical effects by ions, is capable of preventing completely the growth of bacteria without necessarily killing them.

I have carefully repeated his experiments with bacillus pyocyaneus, using two glass tumblers 54 mm. wide by 100 mm. high inside diameter, containing a strong solution of zinc sulphate. Each tumbler was supplied with a zinc plate electrode, 40 mm. wide as in the photograph. These electrodes were amalgamated in the usual way by sulphuric acid and mercury. An U-tube of 16 mm. inside diameter, 150 mm. high and 42 mm. from center to center, was filled with bouillon, both openings being closed by tying animal membrane over them. The tubes were sterilized and inoculated with enough of a fresh bouillon culture of bacillus pyocyaneus to give it a faint greenish color. The membranes were again tied and the tube placed in the two tumblers containing zinc sulphate solution with thermometers (Fig. 5).

The reaction of the zinc sulphate solution remained acid in both tumblers during the whole experiment. The current as given represents the results of passing the regular 110-volt Edison current directly through the apparatus without any other resistance in series. The resistance of the apparatus, therefore, must have been between 1100 ohms (100 milliamperes) and 3440 ohms (32 milliamperes).

The turbidity gradually passing from the positive pole to the negative is due to electric osmose. When a current is sent through two different fluids which are separated by an animal membrane the liquid at the positive pole passes through this membrane towards the negative pole.

After the experiment was completed the U-tube was incubated for 12 hours and showed no growth, but neither did a control tube to which I had added enough zinc

Time.	Current. Milliamperes.	Temperature. Pos. Pole.	Temperature. Neg. Pole.	Remarks.
	100	18 C.	18 C.	Both arms of U-tube clear and of a pale yellowish-green color.
10 min.	36	21 C.	18 C.	Same as above.
15 "	32	23 C.	20 C.	Same as above.
45 "	32	24 C.	21 C.	Same as above.
75 "	47	25 C.	21 C.	Pos. arm beautiful green and clear. Neg. arm yellow and clear.
120 "	59	28 C.	22 C.	Pos. arm becomes turbid. Precipitate. Neg. arm clear.
150 "	63	32 C.	23 C.	Same as above.
240 "	49	35 C.	24.5 C.	Pos. arm more turbid, neg. clear.
20 hrs.	29-49	24 C.	24 C.	Heavy precipitate on animal membrane, grayish white, also in curve of U-tube. Pos. arm clear and yellow; neg. arm clear and light green.
21 "	48	24 C.	24 C.	Same as above.
24 "	45	24 C.	25 C.	Same as above.

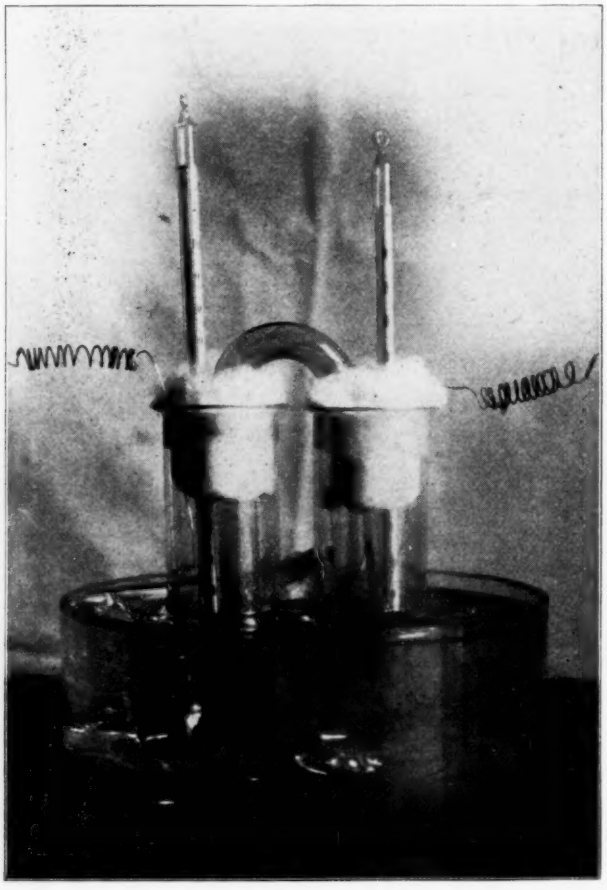

Fig. 4.—Effect of continuous current on bacteria. Germicidal substances at positive and negative poles, with cooling apparatus.

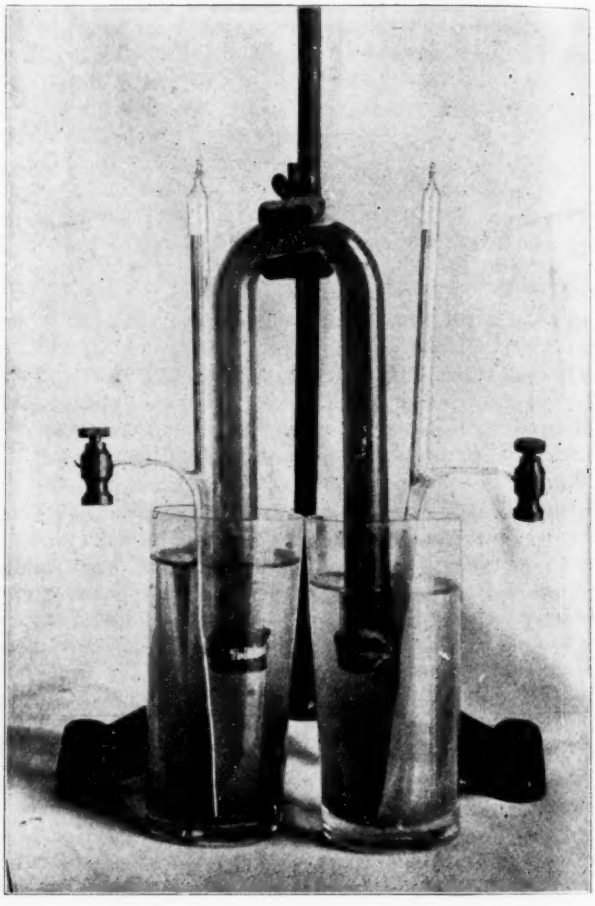

Fig. 5.—Effect of continuous currents. Du Bois-Reymond non-polarizing electrodes in zinc sulphate solution. Culture in U-tube closed by animal membranes. Exclusion of heat and electrolysis.

sulphate solution to cause a similar turbidity. Both tubes when plated out on agar showed fair growth. It would appear from this that electric osmose of zinc sulphate solutions through the porous membrane was alone sufficient to prevent growth.

Such an arrangement of apparatus like the one used will not exclude the production of small quantities of antiseptic substances at the electrodes. Electric osmose causes such a turbidity of the bouillon, gradually passing from the positive to the negative pole, that we must also consider the deterioration of the culture medium in this experiment. I have passed the same current through another U-tube with bouillon for the same length of time (24 hours) and then inoculated the turbid bouillon with a similar quantity of a fresh pyocyaneus culture and found no growth after incubation.

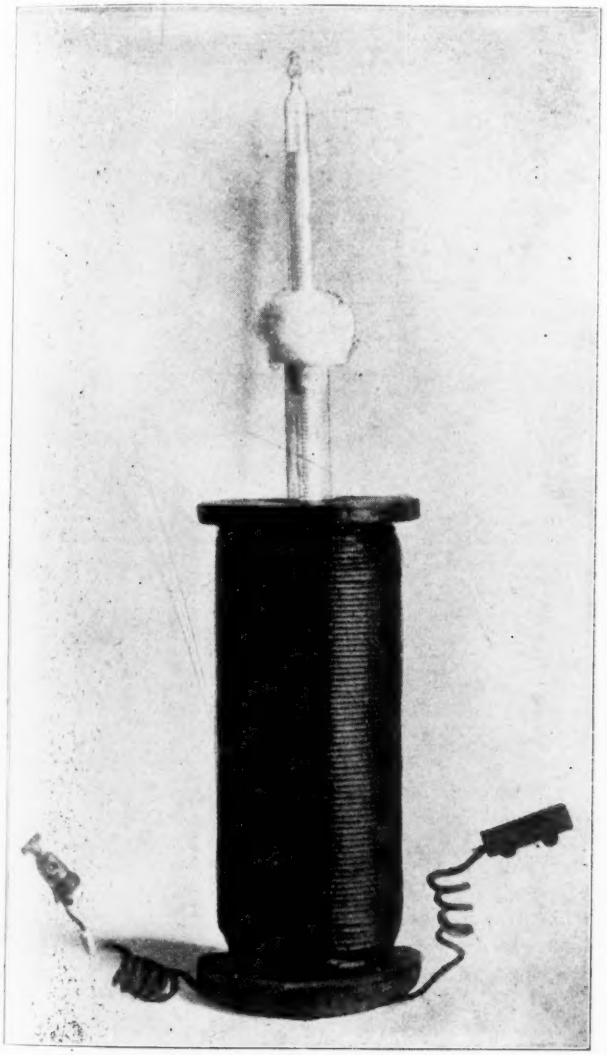

Fig. 6.—Effect of a magnetic field on bacteria. Culture within helix of 900 turns of wire. For currents of ½ to 3 amperes—1350 to 2700 ampere turns.

All this goes to prove that the continuous current itself is not bactericidal, nor even antiseptic, but that it can destroy bacteria only by heat or the production of bactericidal substances by electrolysis.

EFFECT OF A MAGNETIC FIELD ON BACTERIA.

A most remarkable contribution was made in 1891 by Spilker and Gottstein.[16] They claimed to have discovered that a strong continuous current, made to pass through a spiral coil of wire wound around a test tube containing a watery suspension of bacteria, will kill these. They distributed a few loopfuls of a fresh agar culture of the bacillus prodigiosus in sterile water, contained in a test tube of 250 c.c. and passed a current of 2½ amperes through this helix of wire around the tube, for 24 hours. The bacillus prodigiosus was said to have been killed. They then added a little nutritive gelatin to the water and found the same result. Stronger currents were effective in a shorter time, as follows: 5 amperes in 21 to 22 hours; 10 amperes in 4 hours, and 12.5 amperes in 80 minutes. They concluded that micro-organisms can be killed by the induction-electricity (?). When they added ferrum albuminatum to the suspension of bacteria—1 to 1000—they were able to kill the bacillus prodigiosus in from 5 to 30 minutes by a current of 12½ amperes passing through the helix.

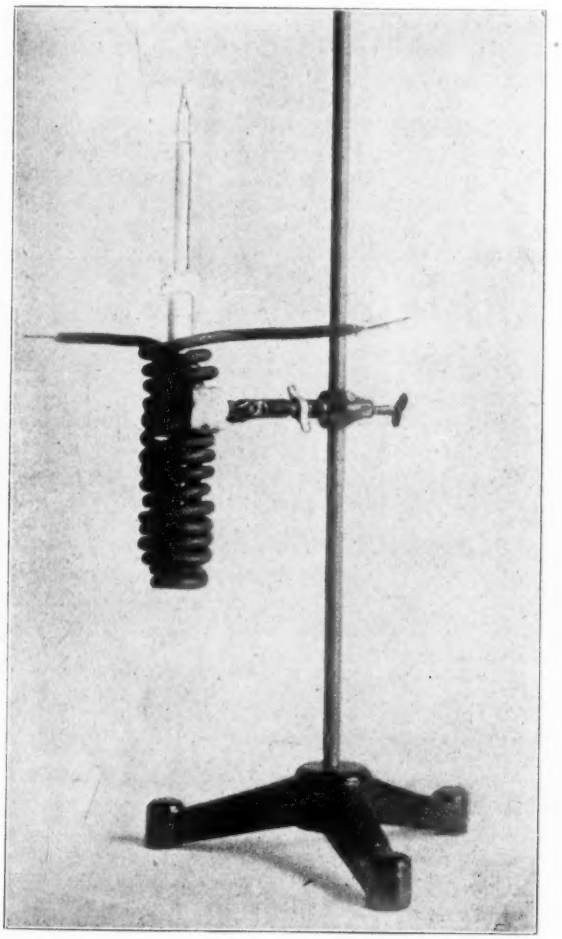

Fig. 7.—Effect of a magnetic field on bacteria. Culture within helix of 15 turns of wire. For currents of 12 amperes—360 ampere turns.

Kruger[12] and Friedenthal[18] repeated these experiments. Kruger thought the effect was negative or at least very slight. Friedenthal had only negative results.

Thiele and Wolf[17] used a solenoid 10 cm. long, consisting of seven layers of forty-four turns each, of a wire 2 mm. thick. A current of 7½ amperes (2310 ampere turns) for 8 hours had no effect whatever.

EXPERIMENTS.—I used a helix of wire 125 mm. long, outside diameter 70 mm., inside diameter 18 mm., with twelve layers of seventy-five turns each of No. 16 (B. and S. gauge) double cotton covered wire, that is, 900 turns of wire. The inside diameter is just large enough to

admit a common size test tube. The tubes were filled about three-quarters full with hydrant water, a thermometer was inserted and they were then sterilized as usual. Suspensions of the bacilli prodigiosus and pyocyaneus were made by stirring enough of a fresh agar culture into the sterile water to color it slightly.

a.—A tube with a suspension of bacillus prodigiosus was placed in the helix (Fig. 6) and a current of 3 amperes (2700 ampere turns) passed through it.

Time.	Temp.	Culture.
	19 C.	Good growth.
½ hour.....	41 C.	" "
1 hour.....	49 C.	" "
1½ hours.....	64 C.	" "
2 hours.....	65 C.	Fair growth.
3 hours.....	67.5 C.	Poor growth.
4 hours.....	68.5 C.	No growth.

The fluid was plated out on agar. No growth. Control tube showed good growth. The result here is evidently due to heat. Practically the same results were found with suspensions of bacillus pyocyaneus.

b.—The same experiment was repeated except that a current of only 1½ amperes was allowed to flow through

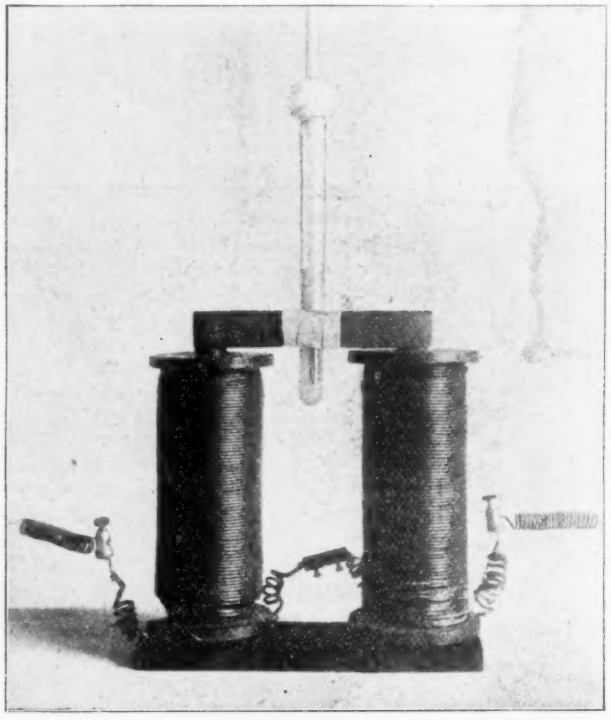

Fig. 8.—Effect of a magnetic field on bacteria. Culture between the poles of a powerful electro-magnet.

the 900 turns of wire of the helix (1350 ampere turns) to maintain a low temperature.

Time.	Temp.	Culture.	Control tube.
	19.5 C.	Good growth.	Good growth.
1 hour.....	25 C.	" "	" "
8 hours.....	32.2 C.	" "	" "
16 hours.....	35.5 C.	Fair growth.	" "
24 hours.....	40.5 C.	Good growth.	" "
32 hours.....	31.5 C.	" "	" "
56 hours.....	29.5 C.	Very good growth.	" "
62 hours.....	38 C.	" " "	" "
70 hours.....	33 C.	" " "	" "
78 hours.....	31.6 C.	" " "	" "
110 hours.....	33 C.	" " "	" "
141 hours.....	29 C.	Fair growth.	Fair growth.
180 hours.....	35 C.	Very good growth.	" "

c.—A few experiments were made also with a solenoid consisting of two layers of fifteen turns each of a very heavy, double rubber coated electric light wire (No. 12 B. and S. gauge) wound tightly around a test tube containing bacillus pyocyaneus (Fig. 7). The current used was 12 amperes (360 ampere turns) for 40 hours in both cases. The temperature ranged between 20 and 26 and a comparison with control tubes and plates after this time displayed no difference whatever. The same was true of the bacillus prodigiosus.

It is evident from this that Spilker and Gottstein's results must have been due to heat, because exhaustion of fluid and starvation of bacteria was prevented in their experiments by the addition of a small quantity of gelatin. Whenever I did this or added ferrum albuminatum, the prodigiosus grew markedly in the suspension during the long time of exposure to the current.

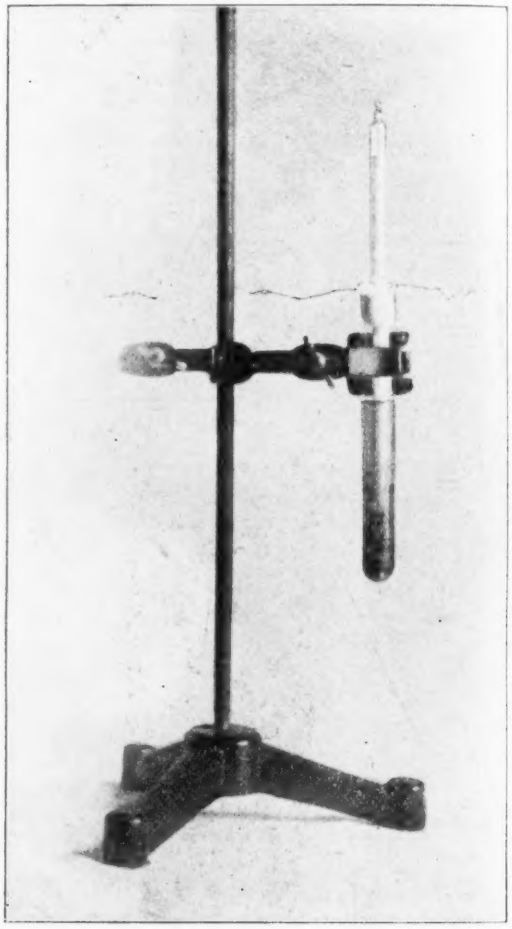

Fig. 9.—Effect of alternating currents on bacteria. Culture tube with platinum electrodes.

How they can speak of induction electricity here I can not understand. The bacterial culture is simply in the magnetic field of the helix of wire.

d.—Therefore, I have made a few more experiments to determine if a strong magnetic field may have any influence on the bacillus prodigiosus and pyocyaneus. A powerful electro-magnet with a coil of 900 turns of wire on each core (20 by 180 mm.), with two pole pieces approaching each other so as to hold the watery suspension of bacteria in a test tube, was energized by a current of 1 ampere (1800 ampere turns) for 200 hours, the temperature ranging between 20 and 28 C. When these were plated out they showed better growth than the control tube. The test-tubes were held between the poles of the magnet by cork (Fig. 8).

Finally I placed similar suspensions between the poles

of a powerful 110-volt Crocker-Wheeler dynamo for 4 days, and, if the temperature was kept below 30 C., the growth in the tubes agreed closely with control tubes.

EFFECT OF ALTERNATING CURRENTS ON BACTERIA.

Cohn and Mendelssohn[5] in 1879 report negative results with alternating currents.

In 1896 Marmier[19] reports that alternating currents of low frequency destroy bacterial toxins by the production of hypochlorites and chlorin.

The same year, Lortet[20] discovered that motile bacteria place themselves in parallel rows to the current. The current does not kill them except when antiseptic substances have been produced.

Heller[21] in 1897 reported that he was able to destroy bacteria by means of the alternating current obtained from the secondary of an induction coil, the primary of which received a current of 5 Bunsen cells. Bacteria were dead in 30 minutes, whereas mucor spores remained alive.

EXPERIMENTS.—An ordinary test-tube containing a fresh bouillon culture of the bacillus prodigiosus was supplied with a thick thermometer, to the mercury bulb of which were fastened two platinum electrodes, 10 by 50 mm., by a thin rubber band (Fig. 9). I passed the secondary current of a three-inch spark, Ruhmkorff coil, through this apparatus for 10 hours, taking cultures

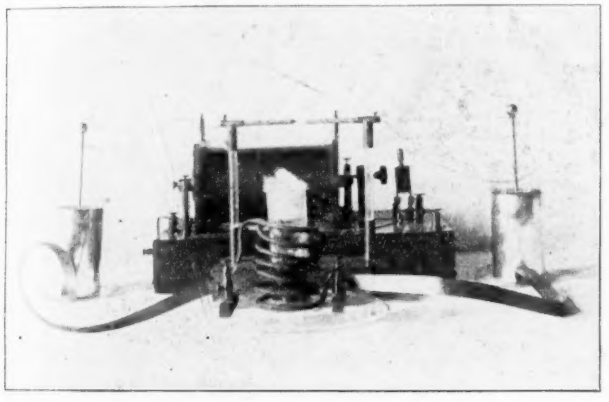

Fig. 10.—High frequency alternating currents.

every hour, with the result that the tubes inoculated grew better and better the longer the current passed, and developed a most beautiful pigment production.

A similar experiment was made with the apparatus shown in Fig. 3, with a three-day-old bouillon culture of bacillus pyocyaneus. The secondary of an eight-inch spark coil was employed, but the growth of bacteria and the pigment production was rather favored than hindered by the current.

The Lortet experiment was also repeated several times by means of a glass slide upon which a square coil was built by means of paraffin. The two platinum electrodes were fastened by paraffin to the slide, their ends protruding into the paraffin cell. The cell was filled with a suspension of typhoid bacilli in sterile water. The results were identical with those of Lortet, but early formation of gas bubbles does not allow of any extended examination. When the current was interrupted the bacilli showed the normal motility.

EFFECTS OF TESLA CURRENTS OR CURRENTS OF HIGH POTENTIAL AND HIGH FREQUENCY.

D'Arsonval and Charrin[22] in 1893 were the first to study the effects of high frequency currents on bacteria. A culture of the bacillus pyocyaneus was placed into a solenoid through which an alternating current of 800,000 oscillations per second was passed for 60 minutes. The green color of the culture disappeared.

The same authors in 1896[23] made numerous animal experiments with cobras, which were injected by virulent cultures of bacilli diphtheriæ and pyocyanei after the cultures had been treated with high frequency currents. They concluded that high frequency currents attenuated the toxins which could then be used for immunization by injection.

Marmier[24] repeated the experiments and was unable to detect any attenuation of toxins.

Bonome and Viola[25 26] found that high potential alternating currents decrease the virulence of streptococcus cultures, one to four days old, and make cultures 20 to 30 days old non-virulent, although the streptococci are not killed. The current only acts on the toxins, which are changed into antitoxins by high potential currents. The cultures were placed into U-tubes with platinum electrodes. The current was taken from a Tesla coil, through which the secondary current of a Ruhmkorff coil was passed.

Dubois[27] concludes that experiments with rabbits demonstrate the destructive action of high potential currents upon the vitality and virulence of streptococci.

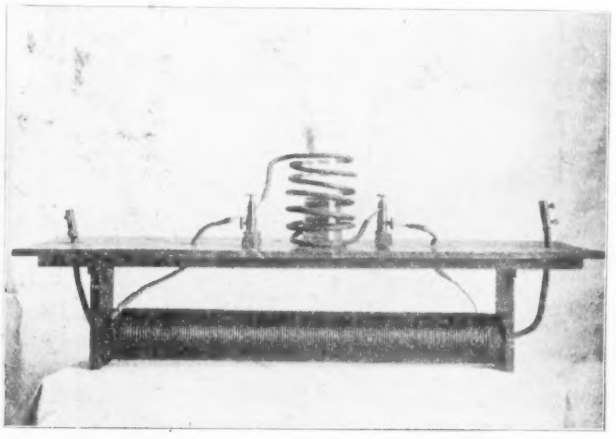

Fig. 11.—Tesla coil. Culture jar within secondary solenoid. The Tesla coil is immersed in boiled linseed oil for the experiment.

Oudin[28] contends that Tesla currents are germicidal and antitoxic, as demonstrated by cures of lupus molluscum contagiosum and healing of large ulcers by simple local action without burns or injury to the epidermis. These currents represent a new form of transformation of electricity into light.

Krause[29] believes that the decolorization of the pyocyaneus and prodigiosus cultures within a solenoid is probably due to the formation of ozone and slight electrolytic changes in the culture medium, because these bacteria produce their usual pigments again when transplanted.

EXPERIMENTS.—*a*.—High frequency alternating currents. The secondary of a three-inch Ruhmkorff coil was connected to the inner coating of two Leyden jars, 70x160 mm., with a Hertz spark gap between zinc points of 10 mm. The outer coatings of the Leyden jars were connected to a solenoid consisting of seven turns of thick wire. Into this solenoid I placed a small museum jar, 42x130 mm., with a suspension of bacillus pyocyaneus in bouillon sufficient to give the bouillon a slight greenish tinge (Fig. 10). The rapid oscillatory discharges of the Leyden jars through this solenoid produce high fre-

quency alternating currents in the solenoid, probably many hundred thousand oscillations per second. The effect upon the bacterial suspension was entirely negative. The current was passed with interruptions for 6 hours. All the cultures taken grew well and the greenish color of the bouillon was not changed in the least.

b.—High frequency, high potential currents—Tesla currents. One of the secondary terminals of an eight-inch Ruhmkorff coil was connected to the inner coating of a Leyden jar and to the primary of a Tesla coil. The other secondary terminal was connected to the outer coating of the Leyden jar, and, through a spark gap of zinc points, to the other primary of the Tesla coil. The spark gap was placed between the poles of a powerful electro-magnet, protected by mica plates, to blow out the arc as soon as formed, so that the fundamental discharges occur in quicker succession as suggested by Tesla.[41]

The Tesla coils used consisted of a primary spiral of thick (No. 6 B. and S. gauge, 4 mm.) wire, the individual turns 10 mm. apart from each other and of a diameter of 40 mm. A thick rubber tube (6 mm.) surrounded the primary coil. Upon this rubber tube were wound 200 turns of a wire 1 mm. thick (No. 18 B. and S. gauge), about 1 mm. between each turn. The coil was fastened by rubber support to a board carrying the two primary and secondary terminals as shown in Fig. 11. The whole coil was immersed in boiled linseed oil. The arrangement of the apparatus is shown in Fig. 12.

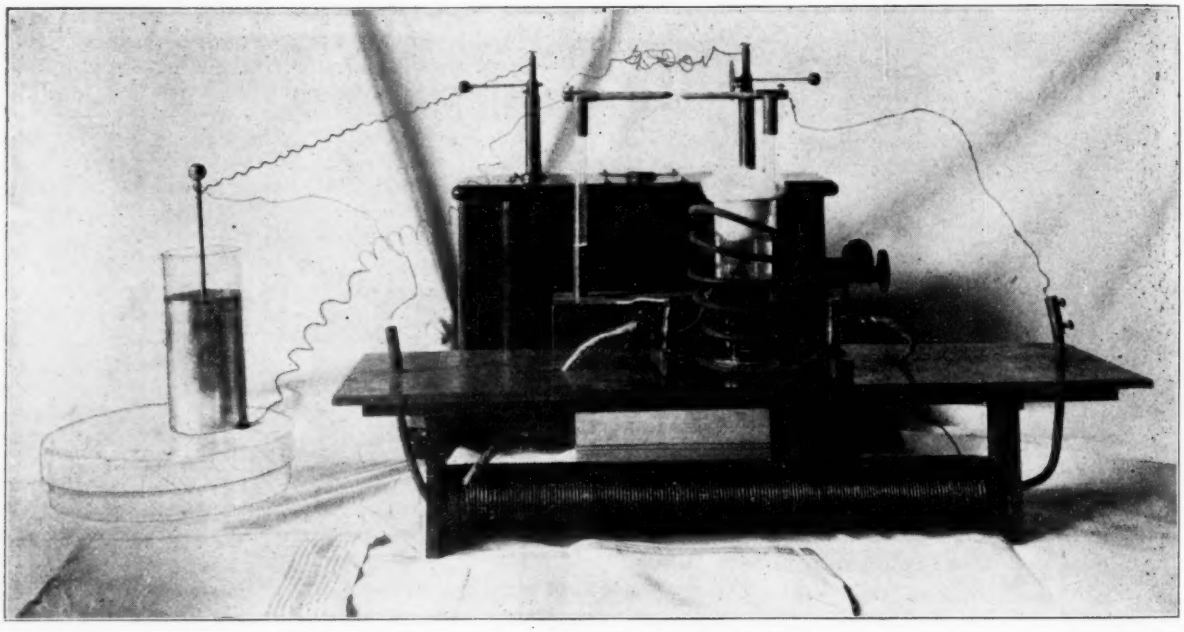

Fig. 12.—High frequency, high potential currents. Tesla currents.

In the former experiment a high frequency current was made to pass through a helix surrounding the bacterial suspension. The primary of the Tesla coil now receives the same current, and induces, in the secondary winding of the Tesla coil, currents of many millions of volts, that is, high potential and high frequency currents. We can draw a shower of sparks from one of the electrodes without any sensations of pain. A suspension of bacillus pyocyaneus was exposed within the same solenoid used in the foregoing experiment, only that it now was connected to the terminals of the secondary winding of the Tesla coil. The current was passed for one hour, and plates made from the bouillon culture in solenoid showed good growth. The same experiment was repeated with bacillus typhosus, coli communis, diphtheriæ, proteus vulgaris, staphylococcus aureus and micrococcus tetragenus, and, in all cases, the agar plates showed good growth.

When the terminals of the Tesla secondary are separated beautiful brush discharges appear. Agar suspensions of bacteria in plates exposed to these show no growth, but the strong odor of ozone betrays the cause of this result.

EFFECT OF ROENTGEN RAYS ON BACTERIA.

Berton[30] exposed bouillon cultures of bacillus diphtheriæ for 16, 32 and 64 hours without any effect upon growth or virulence.

Minck[31] exposed an agar plate which had been inoculated with one loopful of bacillus typhosus and exposed it for 3 hours at a distance of 10 centimeters from the tube. When incubated it showed no difference in growth from a control plate.

Wittlin[32] repeated Minck's experiments with bacillus typhosus, bacillus diphtheriæ, staphylococcus aureus and vibrio choleræ Asiaticæ and concludes that Röntgen rays have no influence upon the growth or life of bacteria.

Blaise and Lambuc[33] experimented with bacillus anthracis and found that 3 hours' exposure had no effect. They explain the favorable clinical results by phagocytosis which may be caused by the rays.

Bergonie and Mongour[34] use Röntgen rays in the treatment of tuberculosis of the lung because they believe phagocytosis is caused. They were unable to reduce the virulence of tubercle bacilli by exposing the sputum to the rays.

Muhsam[35] found that tubercular guinea-pigs were not improved by exposure to Röntgen rays.

Schiff[36] does not believe in any deleterious influence of *x*-rays upon tubercle bacilli in cases of lupus. He believes that the violent inflammation caused in the deeper layers of the skin by the rays are sufficient to produce unfavorable conditions for the growth of bacteria.

Rieder[37] was the first to report germicidal effects of Röntgen rays. He was unable to kill well-grown colonies of bacteria on culture plates. He inoculated agar tubes and plated them out. The open plates were covered

with a lead plate from which a square or circle had been cut out. After a one-hour exposure the plates were covered and placed in the incubator, with the result that the portion of the plate which had been covered by lead showed numerous well-growing colonies, whereas the portion exposed to the rays showed no growth. By various arrangements for control of experiments he excluded heat rays, light rays and electrical effects. He thinks that he can exclude chemical effects, because bacteria inoculated afterwards upon the portion exposed to the rays grow well. These experiments were repeated by others, partially with negative and partially with positive results. Rieder[38] explains the negative results by insufficient intensity of the rays.

Himmel[39] thinks that deeper and more extensive necrosis is produced in lupus than in normal skin.

Levy-Dorn[40] expresses the view that the generally accepted opinion that *x*-rays are bactericidal is wrong. Rieder's experiments were made with rays of great intensity, whereas, in the therapeutic application of the rays, any bactericidal properties of the rays are out of the question. He compares the bactericidal effect of the rays

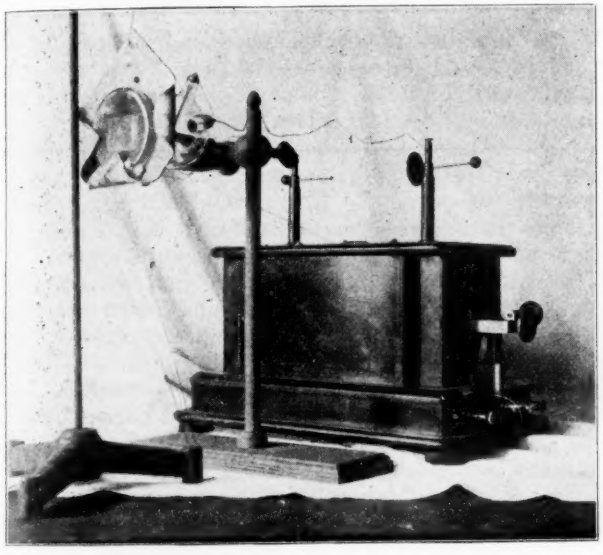

Fig. 13.—Effect of Röntgen rays on bacteria. Open Petri dish with agar culture. Perforated lead plate as cover. Exposed agar film directly to *x*-ray tube.

with that of an attempt to disinfect the intestinal canal with a few drops of creosote, and believes the positive cures of lupus, favus, and psoriasis and chronic eczema by the rays is not due to any direct bactericidal effect.

EXPERIMENTS.—*a*. Bouillon and hydrocele-fluid cultures in test-tubes of bacillus pyocyaneus, prodigiosus, typhosus, anthracis and diphtheriæ were exposed to Röntgen rays at a distance of 2 cm. from the tube for 2, 5, 10, 20 and 48 hours without any effect whatever upon pigment production, growth, motility or virulence.

A repetition of Rieder's experiments proved negative.

b. Suspensions of the same bacteria in agar were plated out. For the glass cover of the plate I substituted a lead plate 5 mm. thick, which had an oval window cut out in the center. The plate was then exposed to the rays, with its agar film towards the tube, at a distance of 20 mm., for ½, 1, 2 and 4 hours (Fig. 13). When incubated the exposed portion of the agar showed just as many colonies as the non-exposed portions.

c. A serum plate was smeared thickly with sputum containing from 50 to 100 tubercle bacilli to the field. The plate was exposed without cover for 6 hours to the rays at a distance of 20 mm. from the tube. Three guinea-pigs were inoculated, of which one died in five weeks and one in seven weeks of acute miliary tuberculosis. One is alive yet, but is tubercular. It has enlarged inguinal glands, constantly elevated temperature and has continually lost in weight.

I conclude from this that Röntgen rays have no direct bactericidal properties. The clinical results must be explained by other factors, possibly the production of ozone, hypochlorous and nitrous acid, extensive necrosis of the deeper layers of the skin, and phagocytosis.

CONCLUSIONS.

1. A continuous current of 260 to 320 milliamperes passed through bouillon cultures kills bacteria of low thermal death points, in 10 minutes by the production of heat—98.5 C. The antiseptics produced by electrolysis during this time are not sufficient to prevent growth of even non-spore bearing bacteria. The effect is a purely physical one.

2. A continuous current of 48 milliamperes passed through bouillon cultures for from 2 to 3 hours does not kill even non-resistant forms of bacteria. The temperature produced by such a current does not rise above 37 C. and the electrolytic products are antiseptic but not germicidal.

3. A continuous current of 100 milliamperes passed through bouillon cultures for 75 minutes kills all non-resistant forms of bacteria even if the temperature is artificially kept below 37 C. The effect is due to the formation of germicidal electrolytic products in the culture. Anthrax spores are killed in 2 hours. Subtilis spores were still alive after the current was passed for 3 hours.

4. A continuous current passed through bouillon cultures of bacteria produces a strongly acid reaction at the positive pole, due to the liberation of chlorin which combines with oxygen to form hypochlorous acid. The strongly alkaline reaction of the bouillon culture at the negative pole is due to the formation of sodium hydroxid and the liberation of hydrogen in gas bubbles. With a current of 100 milliamperes for 2 hours it required 8.82 milligrams of H_2SO_4 to neutralize 1 c.c. of the culture fluid at the negative pole, and all the most resistant forms of bacteria were destroyed at the positive pole, including anthrax and subtilis spores. At the negative pole anthrax spores were killed also, but subtilis spores remained alive for 4 hours.

5. The continuous current alone, by means of DuBois-Reymond's method of non-polarizing electrodes and exclusion of chemical effects by ions in Kruger's sense, is neither bactericidal nor antiseptic. The apparent antiseptic effect on suspension of bacteria is due to electric osmose. The continuous electric current has no bactericidal nor antiseptic properties, but can destroy bacteria only by its physical effects—heat—or chemical effects, the production of bactericidal substances by electrolysis.

6. A magnetic field, either within a helix of wire or between the poles of a powerful electro-magnet, has no antiseptic or bactericidal effects whatever.

7. Alternating currents of a three-inch Ruhmkorff coil passed through bouillon cultures for 10 hours favor growth and pigment production.

8. High frequency, high potential currents—Tesla currents—have neither antiseptic nor bactericidal properties when passed around a bacterial suspension within a solenoid. When exposed to the brush discharges, ozone is produced and kills the bacteria.

9. Bouillon and hydrocele-fluid cultures in test-tubes of non-resistant forms of bacteria could not be killed by

Röntgen rays after 48 hours' exposure at a distance of 20 mm. from the tube.

10. Suspensions of bacteria in agar plates and exposed for 4 hours to the rays, according to Rieder's plan, were not killed.

11. Tubercular sputum exposed to the Röntgen rays for 6 hours at a distance of 20 mm. from the tube, caused acute miliary tuberculosis of all the guinea-pigs inoculated with it.

12. Röntgen rays have no direct bactericidal properties. The clinical results must be explained by other factors, possibly the production of ozone, hypochlorous acid, extensive necrosis of the deeper layers of the skin, and phagocytosis.

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LABORATORY OBSERVATIONS ON HYDROPHOBIA IN OHIO.*

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In the past five years several cases of suspected hydrophobia have been brought to my notice from various quarters of the State of Ohio, and I desire to lay before you a condensed account of them.

CASE 1.—This case came to my laboratory at the Medical Department of the University of Wooster, Cleveland (now the Cleveland College of Physicians and Surgeons), in the winter of 1896, Dr. J. F. Hobson, Lakewood, Ohio, submitting it. Two weeks previously a dog, acting suspiciously, had bitten a boy in Lakewood; the dog was killed and buried, and the lad came to Dr. Hobson for treatment of the wound. His parents became anxious and alarmed, and had the dog's carcass exhumed, and it was brought to the laboratory frozen and in good state of preservation. Three rabbits and one dog were inoculated with an emulsion of the suspected animal's medulla, by the subdural method of Pasteur-Roux; none of these animals developed experimental rabies. But in the interval the boy's parents became more apprehensive and insisted on subjecting him to the preventive treatment. Accordingly, on my recommendation, Dr. Hobson sent the boy to the Chicago Pasteur Institute, where he was treated, and finally returned home with no further mishap.

CASE 2.—This concerns the late Dr. F. A. Todd, who was first assistant physician at the Toledo State Hospital. While making his rounds Aug. 29, 1898, Dr. Todd was attacked by a large, strange dog, which bit and severely lacerated one of his thumbs. The wounded member was encouraged to bleed freely, afterwards treated with solutions of carbolic acid and formalin, and then dressed. The dog was soon after captured and killed, and Dr. H. A. Tobey, superintendent of the Toledo State Hospital, telephoned to the Pathologic Laboratory of the Ohio Hospital for Epileptics, Gallipolis, notifying me of the accident and seeking advice. At my suggestion the dog's carcass was at once shipped, reaching the laboratory, packed in ice, the afternoon of August 30. With an emulsion of the dog's medulla two rabbits were at once inoculated by the subdural method. Dr. Todd was advised by me, both in the first conversation by telephone and in several subsequent letters, to resort to the preventive treatment, and I again recommended the Chicago Pasteur Institute. Dr. Todd, however, seemed reluctant and even indifferent until September 12, when he telephoned me that the suspected dog had, previously to attacking him, bitten two other dogs, one of which was at large, and the other confined by a veterinarian, who had just informed him that it had developed paralytic rabies and had been killed. That evening Dr. Todd went to Chicago and began the Pasteur treatment on the following day. On September 17 both the inoculated rabbits showed symptoms of experimental rabies of the paralytic type, and the smaller one died September 18, the larger one September 19, of this disease. From the first of these two animals a second series of rabbits was inoculated, and these died of paralytic rabies after the usual incubation period. Dr. Todd had followed all the events up to the moment of subjecting himself to treatment with calm, intelligent interest, and, in response to his special request, and after consultation with Dr. Tobey, I informed him of the results of my experiments with the first series of rabbits—September 18. Even before this time he had suffered with pain and beginning inflammation in the bitten thumb, with pains in the back and abdomen, and had been melancholy and depressed. On September 27 the doctor developed pronounced symptoms of hydrophobia, and three days later he died of this disease after a most agonizing ordeal. Although every effort was made by Dr. Tobey and myself, no portion of the spinal cord removed in the autopsy on Dr. Todd, could be obtained, thus leaving the question of laboratory hydrophobia or street rabies open. There can be no doubt, however, as to the genuineness of this sad case, for the experimental inoculations in the rabbits were perfectly typical in their results; lately I have obtained additional confirmation by submitting a spinal ganglion of one of the rabbits, which had fortunately been preserved along with the spinal cord, to the Van Gehuchten-Nelis histologic test, here finding the characteristic ganglionic changes.

* Read at the Fifty-second Annual Meeting of the American Medical Association in the Section on Pathology and Bacteriology, and approved for publication by the Executive Committee: Drs. A. Stengel, W. S. Hall and L. Hektoen.

CASE 3.—This case came to my laboratory at Gallipolis from Defiance, Ohio, Nov. 14, 1898. The dog, whose carcass was sent for examination, had bitten several school children, and the city authorities took the matter in hand, sending the children to the Chicago Pasteur Institute, and the dog to me for examination. I made subdural inoculations in three rabbits with absolutely negative results. In due time the children were returned home and no trouble was experienced.

CASE 4.—A suspected dog, which had bitten several other dogs in Gallipolis last January, was brought to the laboratory within a few hours after being killed. Experimental inoculation of two rabbits proved negative, and none of the dogs developed rabies.

CASE 5.—This was submitted by Dr. J. W. Long, Bryan, Ohio, March 5, 1901. Here a dog had bitten two men and one boy, after which it was killed and the head and neck expressed to the Pathologic Laboratory of the Ohio Hospital for Epileptics, reaching here March 6, in good condition. Three rabbits were at once inoculated with an emulsion of the dog's medulla by the intracerebral method of Leclainche-Morel, and another by the intranasal method of Galli-Valerio and Solomon. The cervical spinal ganglia of the dog were at once subjected to histologic examination, and the lesions of the Van Gehuchten-Nelis reaction were recognized, so that, thirty hours after the dog's head arrived I telegraphed Dr. Long of the positive indications of the histologic test and urged him to submit his patients to the Pasteur treatment, this time in the Pasteur Department of the Baltimore City Hospital; he did this at once. Between March 20 and 21 the three rabbits of the Leclainche-Morel inoculation died of typical paralytic rabies, and on March 22 the one subjected to nasal inoculation died in the same manner. A second series of inoculations in rabbits has since been positive. The ganglia of the first series of rabbits, including the cranial, spinal and sympathetic, have been carefully studied by the Van Gehuchten-Nelis method, all with typical results. This I shall endeavor to show you by the microscopic demonstration which you will find in the pathologic exhibit. The patients returned home after the full course of preventive treatment at Baltimore and up to the present moment are entirely well.

SUMMARY.

1. Four instances in which human beings were bitten by dogs suspected of rabies were tested by laboratory methods with positive results in two. All the patients were given the preventive treatment.

2. In three cases the patients were treated at the Chicago Pasteur Institute, and here the only one positive by laboratory test died of rabies in the midst of treatment, presumably because the inauguration of treatment was somewhat delayed and because the stage of incubation was remarkably short.

3. In the fourth case, conclusively demonstrated as rabies in the laboratory, the patients were promptly treated in the Pasteur Department of the Baltimore City Hospital, and they have given no evidence of the disease six months after having been bitten.

DISCUSSION.

DR. FRANK J. HALL, Kansas City, Mo.—I had a case of hydrophobia when I was not familiar with this method of differentiation and made a search at that time for the so-called "tubercles of Babes," but failed to find them. I did, however, find a great quantity of strongly pigmented leucocytes surrounding the vessels in the chord, in the brain and in the parotid gland. I wish to ask if these leucocytes have been observed by the reader, and if he considers them of any diagnostic importance, or are they observed frequently in this disorder? I had a large white bull-dog that had "gone mad" and, keeping it under observation until its death, prepared an emulsion from the medulla, and inoculated this material into the anterior chamber of the eyes of rabbits. The animals never showed the symptoms of hydrophobia and, therefore, we failed with that method. The eyes of the inoculated animals became very much swollen and became translucent as if injected with water, but aside from that, there were no changes at all. The certainty that my dog was a victim of hydrophobia was proven by the fact that a horse bitten at the same time that the three human beings were bitten, died of hydrophobia 42 days later.

DR. A. P. OHLMACHER, in reply—Concerning the presence of pigmented cells, I will say that while I have had some experience in studying the histology of the hydrophobic condition, and have made an examination of the spinal cord from a number of experimental cases, I believe I have not seen these pigmented cells, or, if they have been seen, I have not thought that they had any special relation to the morbid process attending hydrophobia.

THE NEWER PATHOLOGY OF THE RETINA.

WITH SPECIAL REFERENCE TO THE CHANGES PRODUCED IN THE GANGLION CELLS BY CERTAIN TOXIC AGENTS.*

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In looking through the text-books of ophthalmology of fifty years ago we are struck by the extensive group of amblyopias and amauroses. Ruete describes thirty-seven varieties. The terms were convenient, for as we read in Faust

> Denn eben wo Begriffe fehlen
> Da stellt ein Wort zur rechten Zeit sich ein.

By the aid of ophthalmoscopy and of pathology this great category has been reduced more and more, until now there are but a few important classes of cases for which these terms are still considered useful. Prominent among them are the toxic amblyopias. These have gradually assumed greater and greater importance. The clinical symptoms produced by the various poisons and the character and degree of the visual impairment are now quite well known. Our knowledge, however, of the pathological changes upon which these depend, of the location of the lesion in the visual apparatus, is far from being established. It is our purpose to review briefly the recent studies of this subject and note the conclusions we may draw from them.

I must begin by directing your attention to the great advance made in the histology of the nerve cell through the recently discovered methods of selective staining of different portions of the cell substance, methods which are particularly associated with the name of Nissl. For, while the older methods of staining enabled us to recognize the general structure of the nerve cell with its nucleus and nucleolus and the Golgi-Cajal and Ehrlich methods exposed their numerous ramifications and connections, the intimate structure and composition of the cell is only now revealed to us by the Nissl method. This observer has shown that the cell body contains substances which react very differently to his stains. While portions of the substance remain colorless, other parts take on an intense stain. These are known as the chromatic substance and often called the Nissl bodies.

* Read at the Fifty-second Annual Meeting of the American Medical Association, in the Section on Ophthalmology, and approved for publication by the Executive Committee of the Section: Drs J. A. Lippincott, Casey A. Wood and H. V. Würdemann.

While varying greatly in different forms of cells they are sufficiently constant under the same normal conditions to lead Nissl to regard them as indices of the normal or abnormal structure of the nerve cell.

The researches made by means of this method in the ganglion cells of the retina are not as yet extensive. Those that have appeared are important not only for their reference to the organs of vision but also in their bearing on general nerve histology.

Mann,[1] Bach,[2] Abelsdorff[3] and others have studied the retina under normal conditions, and Dr. Ward A. Holden[4] used the method to determine the effects of quinin and methyl alcohol. The most extensive and important work upon the subject appeared recently from the pen of Birch-Hirschfeld.[5] This observer first endeavored to determine the normal condition of the retina, the variations of the nerve cells in different species of animals, the effects of various hardening fluids and of different staining methods, and of postmortem changes. Next, he investigated the effect on the retina of protection from light or of exposure to various intensities of daylight and of the electric arc light.

It is not possible for me to enter into the details of these results, but it is necessary to state that they were definite and constant under the same conditions. His illustrations showing the normal appearance of the retina (the stain was thionin and erythrosin), as well as those of Abelsdorff are here shown.† You will see that the retinal ganglion cells contain the intensely blue Nissl bodies, between which there is the unstained substance. In the eyes which have been subjected to light the Nissl bodies are somewhat more diffuse than in those in which the eye has been kept in the dark. One drawing shows the effect of exposure for five minutes to a brilliant electric light; the Nissl bodies of many of the cells are almost entirely lost. In another eye treated in the same manner but allowed to recover for one hour in the dark the Nissl bodies are regenerated and show normal conditions.

QUININ.

Various theories had been expressed concerning the action of this drug on the retina. Obliteration of the caliber of the vessels through endovasculitis on the one hand, through irritative contraction on the other were assigned as causes. De Bono[6] in 1894 thought that its action was that of a plasma poison on the terminal retinal cells. It was Dr. Holden, as I stated before, who was the first to investigate its effect on the retinal ganglion cells by means of Nissl's method. His results showed that there were no histological changes in the vessels of the retina or nerves. He found a "constriction of the retinal vessels and particularly of the arteries followed by a highly albuminous serous exudation into the nerve fiber layer and a degeneration of the ganglion cells together with their axis cylinder processes which become the centripetal fibers of the optic nerve." The degenerative changes in the ganglion cells manifested themselves by the formation of vacuoles, wandering of the nucleus toward the periphery of the cells and disintegration and disappearance of the chromatic substance.

He states that "there is no way of determining exactly how far the degeneration of the ganglion cells and their axis-cylinders may be due to the direct toxic action upon them of the cinchonized blood, and how far the degeneration may be due to the indirect toxic action of quinin in constricting the retinal vessels, and thus reducing their nutritive supply." He inclines to the view that "the changes in the retina in quinin amblyopia are due chiefly to deficiency of nutritive supply, and, to a lesser degree, to alteration in the quality of the nutritive supply."

Birch-Hirschfeld* has repeated Holden's experiments on rabbits and on dogs. The results were uniform: The ganglionic cells showed slight decrease in size, blurring or obliteration of the outline of the cell and the formation of smaller or larger vacuoles. The most important change was in the chromatic substance. In most cases this was still to be seen as fine particles lying peripherally. The nucleus was sometimes swollen, sometimes shrunken, the nucleolus showed irregularity in form and was situated peripherally in the nucleus. The cells of the inner nuclear layer likewise showed signs of degeneration. Vascular lesions were absent.

In order to determine whether these changes were due to the direct toxic influence on the nerve cell or were the indirect results of contraction of the vessels, he determined the effect of experimental anemia on the retina by tying the common carotid. The results were marked, but sufficiently different to lead him to conclude that the ischemia produced by contraction of the retinal vessels does not suffice to explain all the changes found in quinin intoxication. He assumes that the additional factor is the direct action of the poison on the nerve cell. There was nothing to indicate that the retinal changes are secondary to nerve changes; on the contrary, the former were found before any changes could be seen in the nerve.

Drualt[7] also reported experiments on dogs. He obtained typical changes. "At the end of ten hours one can already recognize very advanced chromatolysis of the ganglion cells and in some even complete destruction of the chromatic substance."

He also describes the changes produced in the ganglion cells by cutting the optic nerve behind the entrance of the central retinal vessels. In this experiment he claims that the retinal ganglion cells disappear at the end of ten to twenty days.‡ He maintains that if the optic nerve is cut and quinin is injected subsequently at a varying interval that the degenerative changes will be similar in both eyes when the interval is short (two days), but that when the interval is long (six days) the degeneration will be very slight after the injection of quinin.[13] He concludes that as the cells lose their normal condition as a result of neurectomy they also lose their susceptibility to the poisonous effect of quinin. Inasmuch as vasomotor influences are unaffected he believes the poison must act directly upon the cell. It is probable that the early changes in the nerve cell, so long as they affect only the chromatic substance, are possible of repair; when the degeneration has attacked the body and the nucleus of the cell its function is probably permanently destroyed. Birch-Hirschfeld cites the view of Goldsheider and Flatau[14] that the Nissl bodies have no vital importance but are significant in that they reveal the earliest pathological changes in the cell.

† The illustrations were passed around.

* He criticises Holden's results on the ground that postmortem changes were not sufficiently excluded and that the method of killing the animal (by chloroform narcosis and bleeding to death) may in itself have been productive of certain changes. He killed his animals by a blow on the neck and the eyes were immediately removed.

‡ This is not in accord with Birch-Hirschfeld, who describes marked signs of chromatolysis 55 hours after the section; in five, ten and fifteen days these changes are more distinct, but he does not suggest the entire disappearance of cells.

Thus we see that Holden's experiments are on the whole confirmed. And we may now take it as an established fact that quinin causes blindness by its action on the retina and not on the nerve.

Parinaud[15] believes that the toxic action is on the entire neuron from center to periphery. This view is purely suppositional and without any experimental basis.

FELIX MAS.

DeSchweinitz[8] was unable to produce any change either in the nerve or in the retina in his experiments on dogs. Masius and Mahain in 1899† found marked atrophy of the nerve fiber layer, dilatation of the capillary vessels, thickening of the septa, atrophy of the optic nerve, with the formation of vacuoles in the nerve. The retinal changes were slight excepting some chromatolysis of the ganglion cells in the central fossa. They concluded that the lesions were primarily in the nerves, depended on vascular changes and that the retina suffered secondarily. Birch-Hirschfeld succeeded in experiments with this poison on rabbits. He was unable to find any ophthalmoscopic changes, but his cases showed varying degrees of change in the inner nuclear layer and in the ganglion cells, i. e., aggregation of the chromatic substance in lumps, or its disappearance, shrinkage of the nucleus and disintegration of the cell; the inner nuclear layer presented a hyperchromatic and shrunken condition of the nuclei. He maintains the degeneration and atrophy of the nerve fibers is secondary to the retinal changes.

Okamoto[9] recently reported slight swelling of the medullary sheaths, atrophy of the axis-cylinders and hyperplasia of the interstitial tissue.

Nuel[10] has likewise recently published the results of his experiments with felix mas. They are summarized in the following sentence: "Filicic optic neuritis is a parenchymatous neuritis characterized by a primary lesion and destruction of nerve fibers; only later are secondary changes produced in the interstitial tissue, first in the neuroglia and afterwards in the vessels and connective tissue. In certain parts of the nerves the subsequent changes assume exactly the characters that are considered pathognomonic of the neuritis called interstitial."

These views are in direct contradiction to those generally accepted by ophthalmopathologists and must await satisfactory confirmation. At present it appears probable that the changes produced by felix mas are to be found in the inner nuclear layer and the layer of ganglion cells as shown by Birch-Hirschfeld, and that the changes in the optic nerve are secondary.

BISULPHID OF CARBON.

This produces amblyopia of the alcohol-tobacco type; it was used by Birch-Hirschfeld in experiments on rabbits. The same poison has been found by Köster[16] to produce characteristic changes in the spinal ganglion cells. Birch-Hirschfeld's results were practically negative so far as the retina was concerned. This justifies the opinion that the primary changes are not produced in the retina but elsewhere, in all probability in the optic nerve.

ALCOHOL.

Holden in one case produced degenerative changes in the ganglion cells of the retina and some medullary sheaths of the optic nerve by means of methyl alcohol and he concluded that this form of amblyopia is due to "nutritive disturbances in the ganglion cells of the retina."

This view has recently been opposed by Gifford, chiefly on the ground of McCoy and Michael's case of optic neuritis from methyl alcohol. Birch-Hirschfeld criticises these objections because the case referred to stands alone among all in which no neuritis could be detected.

Birch-Hirschfeld's experiments were made on rabbits and chickens, and his results were definite. The early changes consist in the chromatic bodies of the ganglion cells losing their sharp definition and the substance of the cell taking up the stain, while the body of the cell becomes shrunken. Then the nucleus shrinks, becomes irregular and shows signs of degeneration. Finally the outline of the cell becomes indistinct and a shrunken nucleus alone marks the former location of the cell. The inner and outer nuclear layers likewise show degeneration, especially the inner. The retinal vessels were normal. The optic nerves showed no lesion excepting in one case—the one in which the retinal changes were most marked. In this there was a section of degeneration in the nerve but even here there were normal fibers among the degenerated ones. There were no interstitial changes in the degenerated portion of the nerve. Hirschfeld, therefore, concludes that experimental methyl alcohol amaurosis depends primarily upon lesion of the retina—first of the ganglion layer, later of the inner and outer changes in the optic nerve. He emphasizes the remarkable analogy between the optic nerve changes just described and the picture which the degenerated optic nerve of ethyl alcohol amblyopia presents. Neuritic changes were absent in the rabbit's nerve; he suggests that perhaps the period of intoxication in the rabbit (14 days) had been too short, and also cites Heilbronner's[17] observations as showing that the connective tissue changes in peripheral alcohol neuritis are secondary.

It is not possible to draw reliable conclusion as to the effects of ethyl alcohol on man from these results of methyl alcohol. Uhthoff[18] properly warns against accepting the results on animals as necessarily identical with those on human beings and especially the effects of the long-continued chronic poisoning as usually observed in man.

AUTHOR'S EXPERIMENTS.

In order to determine the effects of chronic alcohol poisoning the writer fed rabbits with absolute ethyl alcohol, pure methyl alcohol, commercial methyl alcohol and Jamaica ginger (made of 95 per cent. methyl alcohol).

I desire here to give in brief the results on four rabbits to which they were given in small amounts (5 to 10 c.c.) for a period of almost four months. The rabbits lost weight, but otherwise remained apparently healthy, and were killed by a blow on the back of the neck. The eyes were immediately removed and one of each animal hardened in 96 per cent. alcohol, the other in saturated bichlorid of mercury solution. The sections were cut and stained under the direction of the well-known neuro-pathologist, Dr. Stewart Paton, the director of the laboratory of the Sheppard-Pratt Hospital for the Insane. The effects of all four substances were similar. As yet it is impossible to state any specific differences.

The ganglion cells show marked signs of degeneration, but the inner nuclear and outer nuclear layers are likewise affected, especially the inner. Many ganglion cells show great shrinkage and atrophy; the chromatic sub-

† Cited by Birch-Hirschfeld.

stance is broken down and granular. Other cells show no nuclei or nuclei very irregular in shape. In other cells again the chromatic substance appears fused so that it forms an almost complete ring around the nucleus, in which case the cells are more or less irregularly contracted and the parts where the processes leave the cells are also shrunken. This change is suggestive of chronic cell degeneration. Some ganglion cells in which the cell body has disappeared, leaving a faint nucleus, suggest the acute degeneration described by Nissl.

It is very significant that the ethyl and methyl alcohols produce similar changes in chronic poisoning. I shall not venture to say whether these changes in the retina are primary or secondary to optic nerve lesions, though I incline to the former view. The question can not be answered until more extensive experiments which the writer has in contemplation are concluded. But it must be admitted that in producing these retinal changes by *chronic alcohol poisoning* we have made an important advance in the solution of the same chronic poisoning in man. I shall give a detailed report of these experiments elsewhere.

In concluding this paper I desire to point out the review given by Uhthoff[11] at the last International Ophthalmological Congress in Paris in August, 1900, on "Toxic Neuritis." He divided this into two groups: first those toxic amblyopias that present a central scotoma and normal periphery of the field; these are the partial retrobulbar forms due to alcohol, tobacco, bisulphid of carbon, arsenic, iodoform, stramonium and hashish. The second group shows changes in the blood vessels with secondary ischemic necrosis, and in addition there is direct poisonous action on the nerve cell. He notes that the constriction of the vessel alone can not explain the affection, for ergot with its powerful constrictive action is not known to produce such destructive changes.

Uhthoff is one of the most formidable champions of the neuritic theory, so far as the alcohol tobacco group is concerned. His arguments are based on the pathologic findings in his eleven cases of alcohol and tobacco blindness, in which the optic nerve was subjected to microscopic examination and in all of which, evidences of neuritis beside the atrophy of the nerve fibers were found. He therefore refuses to regard the condition as a simple degeneration.

Siegrist[12] has likewise recently written a strongly argumentative article opposing the view that the optic nerve lesions in alcohol and tobacco amblyopia are due to primary retinal lesion with ascending degeneration. It is difficult to harmonize the results of experimentation on animals and the pathologic findings of partial neuritic atrophy of the optic nerve in man.

At present the only possible way is to assume that, as Heilbronner, and recently, Nuel, have endeavored to prove, the neuritic changes are secondary to a primary degeneration of the nerve fiber. But it is wiser still to await the results of more extensive experimental and pathological research.

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ATROPHY OF THE RETINA.*

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It may be sometimes quite impossible to discover the cause of disease, and it is not always easy to determine whether a lesion is dependent upon some other morbid process, or of primary origin. I have hesitated to believe it possible for atrophy of the retina to come on as a primary condition, without any discoverable preceding inflammation, or even hyperplasia; but, it is certain that, whatever disturbances may have preceded the beginning of atrophic changes in the two cases herein reported, there was no manifest hyperemia before failure of sight. I am not sure that some occult inhibition of the functions of the vasomotor nerve force may not cause primary atrophy.

Miss M. B. J., aged 19, came to me July 12, 1882, with a note explaining that she had been unable to pursue her studies without headache. After suspending her accommodation, I found that, with +1/30 C. ax. 90° for each eye she saw 20/XX, Snellen. She returned home and got along satisfactorily with her studies until April, 1888, when I received a letter telling me she had suddenly experienced difficulty in reading at night, and could not distinguish the color of roses.

She returned to Louisville, when I found this difficulty had increased progressively until she was no longer able to read on cloudy days. Her fields were irregularly contracted, and she had no perception of either red or green. Her general health seemed to be perfectly good. The menstrual function was normal. Her sight was now reduced to 20/LXX, Snellen, in the right eye, and 20/C in the left. She remained with relatives in the city until June, when she was unable to see the test type, even at 10 feet with any glass. She could not differentiate colored lights. Ophthalmoscopic examination showed nothing definite. Her fields were extremely contracted, she had central scotomata in both eyes. She went with her grandmother to New England to spend the summer; and in August consulted Dr. Hasket Derby, of Boston, who found "the central vessels of the retina extremely small, with no abnormal appearances of the discs. She is unable to distinguish any test object."

The first week in September she returned to Louisville and I again mapped her field of perception. Both fields showed increased peripheral contraction, with central scotomata of irregular outline. She described everything as "smoky and blurred." In brilliant illumination, a book held before the face seemed "covered with a fine gray network." November, she was unable to distinguish any objects. On bright days everything

* Read at the Fifty-second Annual Meeting of the American Medical Association, in the Section on Ophthalmology, and approved for publication by the Executive Committee of the Section: Drs. J. A. Lippincott, Casey A. Wood and H. V. Würdemann.

seemed so dark and indistinct, she felt as if she were in a dense fog. Looking at any bright light, she was annoyed with a gray network before her. Artificial lights seemed smoky, and she said "it seemed covered with a dark mosquito net."

The ophthalmoscope showed at this time, faint grayish striations in the region of the macula, and near the larger vessels around the disc. The larger retinal vessels were scarcely visible beyond the discs, while the latter seemed perfectly normal.

She has remained in this condition until the present time. No other member of this young lady's family has suffered with blindness in any form, although a large number of her close family relations have various kinds of optical defects, for which I have prescribed; yet, none of them have retinal, or choroidal disease. There was no evidence of hereditary blood taint, and no sign of toxemia. I felt obliged to consider this a case of primary atrophy of the retina, advancing in both eyes to the extinction of useful vision, probably due to excessive exposure of the eyes to the bright sunlight, as she was accustomed to read in the sun.

Miss H., aged 17, of Frankfort, Ky., consulted me on Nov. 12, 1892. She had been having headaches, so severe as to interrupt her studies at school. With accommodation suspended, she saw with +1/60 C. 90° = 20/XX in the right eye, and with +1/48 C. 90° = 20/XX in the left. There were no ophthalmoscopic signs of disease. She returned home and resumed her studies. March 6, 1895, amblyopia had appeared to a degree sufficient to make reading impossible. Sight in the right eye = 6/XVIII, and in the left = 6/IX. I was astonished to find that now no glass improved the sight. Her fields of vision were irregularly contracted, with comet-shaped scotoma in the field of the right eye. The left was obscured by a veil-like mist with incomplete central scotoma. She had no color perception in either eye. Ophthalmoscopic appearances at this time were great narrowing of the retinal vessels, the larger ones only being easily traced. Light grayish striations in different portions of the field seemed to occupy the vicinity of the contracted vessels. May 17, 1895, the retinal vessels were empty, and not visible except in the discs, and faded away within two millimeters of the papillæ. She had always enjoyed good health, and there had been at no time any sign of inherited blood taint or toxemia. The discs were at each examination perfectly distinct in outline, and apparently normal. March 5, 1900, she came with her sister, and on careful examination I found it very difficult to trace even the outlines of the larger vessels of the retina, even to the margins of the discs, while numerous pale grayish striations occupied the region of the macula, and, radiary streaks of gray following the direction of the closed vessels around the discs. The discs appeared entirely sound and normal. Both eyes appeared alike. The pupils were moderately dilated, and responded but slightly to concentrated light. She could see shadows of objects passed between the eyes and a strong light. Artificial lights appeared pale gray, and seemed covered with a heavy mist or fog. I could find nothing as to any probable cause of the atrophy in this case.

Drasche and Weinlechner Reach the Age Limit.—Professors R. von Drasche and Weinlechner took leave of their charge in the Vienna public hospital recently, as they had reached the age limit. The occasion was rendered memorable by tributes from their colleagues and pupils.

A CASE OF BLINDNESS FROM DRINKING BAY RUM, COMPARED WITH THE REPORTED CASES DUE TO METHYL ALCOHOL AND TO ESSENCE OF JAMAICA GINGER, ETC.*

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FORT SMITH, ARK.

For some time the idea has been entertained that wood alcohol is the toxic agent in cases of amblyopia following the drinking of essence of Jamaica ginger and similar preparations. Dr. Hiram Woods thought of, but seems to have rejected the idea which Dr. Jackson more lately advocates.†

We will remember that reports of these cases began to appear nearly at the same time with reports of the cases due to wood alcohol. While bay rum and various essences have been long used as substitutes for whisky in prohibitory districts without accident, there have recently occurred several fatalities. I personally know this fact to apply in the Indian Territory, where the United States prohibition is very rigid. Within a year or two there have been several deaths in that country from drinking these things as well as wood alcohol. Ordinary wood alcohol has a characteristic odor and taste so disagreeable as to have formerly prohibited its use in pharmacy, but the more recent method of preparing it, under the name of "Columbian spirits," removes to a large degree its objectionable features, so that such use is possible. Its cheapness, too, recommends it as a substitute in part at least for ordinary alcohol, in such preparations as are sold at cheap price in country stores.

Moreover, it seems in some quarters to be considered non-toxic in this purified form. (Prof. J. H. Long, personal communication.) This is, however, refuted and shown to be dangerous by the reports of Gifford and of Patillo. Professor Long (same communication) states that it is rapidly coming into use in pharmacy, especially in making bay rum and kindred preparations. Dr. Harlan had a chemist demonstrate by analysis the presence of wood alcohol in the essences of ginger and peppermint drank by the patients whose cases he reports.

It is worthy of note that we know of no other substance which when swallowed selects for attack with such uniformity the optic nerve and retina. Those who record cases of blindnes due to this cause mention in all thirty persons who drank from one to two drams to an ounce or more of the substance, and were made sick by it. Fifteen, or 50 per cent., lost their sight. One of the first cases on record was published by the present writer in 1899. Four preceded and others have followed, till now fifteen or more are described in literature. A dozen or more cases from essences also are reported, a sufficient number to afford reliable data for comparison. An analysis of fifteen cases of wood alcohol blindness, and of twelve cases of blindness due to the essence of Jamaica ginger, etc., proper references to which are given in the appended bibliography, shows the striking identity of important symptoms.

In each group, unless the dose was large enough to produce coma, no unusual symptoms presented on the first day. Usually on the second or third day, sometimes later,

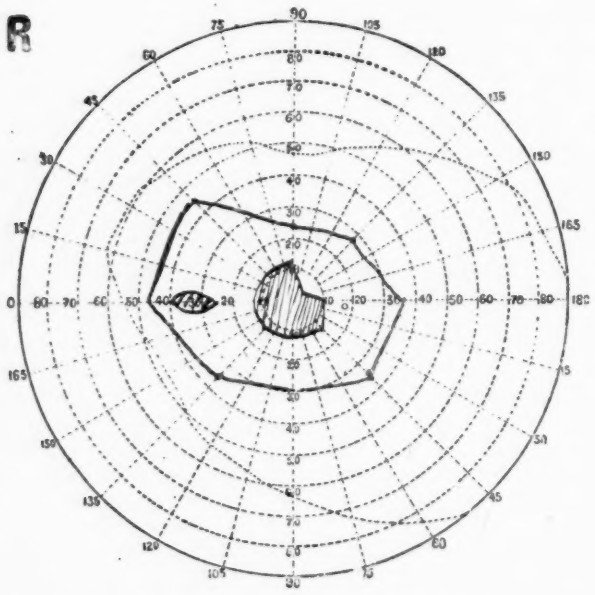
* Read at the Fifty-second Annual Meeting of the American Medical Association, in the Section on Ophthalmology, and approved for publication by the Executive Committee of the Section: Drs. J. A. Lippincott, Casey A. Wood and H. V. Würdemann.

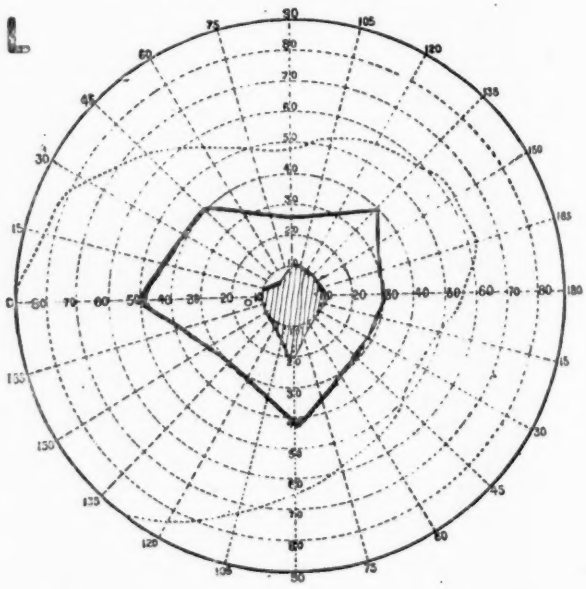
† Dr. Woods afterwards accepted this idea.

the almost constant history is of nausea, vomiting, headache and dizziness. Visual disturbances are delayed for a day or two longer. In about twelve to forty-eight hours blindness becomes total. In a few days some even useful vision is restored, only to be lost again in a short time. In every case where the field of vision was studied, a central scotoma was demonstrated, except once, namely, in Stieren's case of ginger poisoning. Narrowing of the field was equally characteristic. Atrophy of the papilla was universal, most pronounced in the temporal half and preceded in a few cases by a low grade of visible neuritis. In about half of each group the retinal vessels were narrowed, in the other half normal. Other symptoms are "excitement," "coma," "semi-coma," "depression," "coming and going of sight," "sensitiveness to pressure and to movement of eyeballs," etc. Only two cases recovered normal vision, one in each group.

The two cases following illustrate beautifully the clinical identity of the two classes of cases. The first is from my own practice.

William Leslie of Talequah, I. T., aged 25 years, colored, was seen Oct. 23, 1900. His health and eyesight had been good until Sunday, Sept. 18, 1899, when he and





two companions drank a pint bottle of bay rum. Two of the men kept quiet and were in no way affected, but our patient, who drank more than the others, kept up vigorous exercises by riding a bucking pony all day. He went to bed that night and slept soundly. Next morning at sunrise he noticed an uneasy sore feeling about the eyes, and shortly afterwards a failure of sight. At 8 o'clock he vomited, and again frequently during the day. By night he was totally blind. During the two following days he felt "deathly sick," but by Thursday felt as well as usual, excepting that he was blind. He said that during the time that his eyesight was going from him, his central vision failed first while he was able still to perceive objects at a little distance from the blind area on either side. Three weeks later some vision surrounding a central dark spot returned, but was soon lost. He has remained without light perception ever since. There is slight lateral nystagmus. The pupils are dilated and rigid; tension is normal and media are clear. The retinal vessels remain of normal size. The optic discs are opaque, white and level with the surrounding retina. The edges are not furred, but the lamina cribrosa is invisible. There is, however, a slight but well-marked physiological cup. The nasal halves only of the discs retain a slight pinkish hue.

The other case occurred in the practice of Dr. E. C. Ellett of Memphis, to whom I am indebted for the notes and accompanying charts. O. L., male, white, aged 28, was seen Nov. 28, 1899. On April 6, 1899, while on a spree, he drank one-half pint of wood alcohol by mistake. Within three hours was comatose, and remained so on and off for four days (still intoxicated). When he recovered vision was reduced to perception of light. This improved, and about April 29 he could see to read a paper. It again became worse, and has remained so. Vision now counts fingers excentrically at five feet. The grounds show optic atrophy with cup 2 D. deep. The vessels are slightly narrowed. Central scotoma is as shown on charts.

The important point is that various substances liable to be drank may contain wood alcohol, and that we should be able to make a diagnosis from the symptoms, the most important of which are, at first, gastro-enteric disturbances when the dose is small, and coma when it is large, folowed by rapid failure of sight, which later improves, but soon relapses; contraction of the fields and absolute, usually, central scotomata, and sometimes total blindness. These are symptoms of retrobulbar neuritis, but the cases of retrobulbar neuritis of the text-books mostly recover; these do not. More than 90 per cent. permanently lose useful vision.

SYNOPSIS OF WOOD ALCOHOL CASES.

Mengin (Viger): 1879. Headache, vomiting, delirium, etc. Blind on second day. Improved, but finally totally blind. White atrophy. Vessels normal.

Kuhnt: 1899. Took one swallow. Headache, nausea, semi-coma. Blind on 5th day. Eyeball painful to movement and pressure. Pilocarpin. Recovery in one month. At first, discs pale; arteries narrow, normal later. A second case died of gastro-enteritis after having become blind.

McCoy and Michael: 1898. 120 c.c. Early total blindness. Improvement, then relapse. Two fingers, one eye; projected light, in other. Neuritis passing into atrophy.

Moulton: 1899. Half pint. Weakness, semi-coma. Blind in 24 hours. Improvement, relapse. V-fingers at 1 foot in L. E.; R. E. equaling L. P. Contracted field. Central scotoma. White atrophy. Narrow vessels. (Five men drank

about same amount; two died; one went blind; two recovered without eye symptoms.)

Callan: 1899. Notes not available.

Gifford: 1899. Two to three oz. Headache, vomiting. Totally blind 4th day. Improvement; central scotoma. Later totally blind. Atrophy. Narrow vessels.

Gifford: Another case was blind in 24 hours, and died in 48 hours.

Gifford: A case observed by Foster is described who drank a small amount. Blind in 24 hours. Wildly excited and soon died.

Patillo (also Casey A. Wood): 1899. Inhaled fumes four days. Nausea, etc. Blind on 6th day. Improvement and relapse. R. E. equaled fingers at 3 feet; L. E. equaled L. P. Central scotoma. Atrophy. Vessels: right, normal; left, contracted.

Patillo: Inhalation for two weeks. Headache, nausea, etc., for two days. Blind on third day. V. equaling fingers 1 and 3 feet for L. and R. E. respectively. Central scotoma. Atrophy. Vessels normal.

Raub: 1899. Two to five drams. Blind in 6 days. Improved, relapsed to total blindness. Atrophy.

Raub: 1899. Semi-conscious 4 days; then blind. Improvement. Final blindness. Atrophy.

Jackson: 1901. Coma 48 hours. Blindness on waking. Improvement. Relapse. Atrophy.

SYNOPSIS OF GINGER, ETC., CASES.

Thompson: 1897. One and a half quarts. Headache, nausea, etc. Blind on 5th day. Improvement; relapse. Fingers for R. E. at 3 feet; L. E. equaling 1/100. Central scotoma. Atrophy, especially papillo-macular.

Woods: 1899. Drank for 5 or 6 days; then blind. Improvement; relapse. Can see only large moving objects. Central scotoma, atrophy; vessels normal.

Woods: 1899. One or two pints. Nausea, etc. Blind in twenty-four hours. V. improved, then stationary. Fingers at 6 inches. Atrophy; furred papilla. Narrow arteries.

Woods: 1899. One pint. Coma, nausea. Blind in 48 hours. Improved to get about. Fingers R. E. at 10 feet; L. E. at 20 inches. Scotomata in contracted fields. Papillo-macular atrophy.

Woods: 1899. Six ounces. Headache. Gastro-enteric symptoms. Blind on 3d day. Papilla. At first normal; later atrophic.

Woods: 1899. Seven bottles. Vomiting, headache, etc. Blind on 3d day. Neuritic atrophy.

Woods: 1899. Twenty ounces. Ginger and peppermint. Nausea, etc. Blind in 48 hours. Eyeballs sensitive to touch or movement. Improvement. Finally blind. Neuritis followed by atrophy.

Stieren: 1901. Twelve ounces. Blind in 12 hours. Recovery after prompt and vigorous treatment, principally with pilocarpin.

Harlan: 1901. Fourteen bottles. Coma. Blindness 4th day, nearly total. V. varied some weeks, then total blindness.

Harlan: 1901. Three and a half bottles peppermint and lemon. L. P. 4th day. Under pilocarpin and strychnin improved to 6/200. Atrophy. Fields small and irregular.

Dunn: 1901. Dunn's two cases, though seen late, had rather more than the average vision; but the nerves were atrophic with vessel changes.

NOTE: Since writing this paper, De Schweinitz has recorded (*Oph. Rec.*, June, 1901) a case due to inhaling wood spirits from varnish. This case also improved, but finally became totally blind with nerve atrophy and contracted vessels.

Gifford has also added another case. (*Oph. Rec.*, July, 1901.) Two or three drinks caused blindness on the fourth day. Treatment was begun immediately with iodid and pilocarpin, with recovery of final vision equaling nearly 20/20, with atrophic nerves and contracted fields. There were ophthalmoscopic signs of neuritis. It is worth noting that in this, the treatment was begun as in Kuhnt's and Stieren's cases within a few hours of the onset of blindness, and to this fact it is reasonable to attribute success. In most of the other cases rational treatment was begun late.

Dr. A. B. Hale, of Chicago, has kindly sent me notes of two cases due to inhalation from varnish. One of them was one of the cases reported by Patillo and Wood. The other undoubtedly is as yet an unrecorded case: "W. H., aged 40, worked seven weeks in open vats, then six days (July 8-14, 1899) in closed vats, and April 26, 1900, was in same condition as Grinette." (Patillo's 1st case.)

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DISCUSSION ON PAPERS OF DRS. FRIEDENWALD, REYNOLDS AND MOULTON.

DR. J. M. RAY, Louisville—I can not discuss Dr. Friedenwald's paper from a pathological standpoint, but from a clinical point of view I would like to make a few suggestions. The experimental investigations of Holden seem to point to the retina as the seat of the change resulting from the toxic influence of wood alcohol, but the changes observed with the ophthalmoscope, and the future history of the case, seem to point to the optic nerve as the injured part. The first case of methyl alcohol poisoning that I saw, was in 1896, and Dr. de Schweinitz informs me that it is the oldest case that he has heard of in this country. The case was reported before a local medical society, and the notes were laid aside for future reference and neglected. In that case, a woman, after being out with convivial friends returned home and shortly after retiring became thirsty. In looking around for something to satisfy her thirst she encountered a bottle marked "alcohol." Diluting this with water she drank it. The following day she suffered much from nausea and vomiting. This persisted, and the next day she noticed a blurring and dancing of objects. On the third day she was blind and I was called to see her. At the first visit, I found the patient blind, with semi-dilated pupils, and a fixed stare. With the ophthalmoscope, a hyperemic disc and a fuzzy retina surrounding, was all that could be discovered. The disc eventually became edematous, with the blood vessels full and the retina hazy, this haze gradually fading toward the periphery. The blindness remained absolute for three weeks; then peripheral vision began to appear, the edema disappeared, and vision became about 20/20. Then atrophy of the nerve head began to develop, and when I last saw the patient this was complete and only a little eccentric vision remained.

Two years ago I saw a second case: A colored woman drank of a decoction made by an "herb doctor;" this was followed by intense gastric disturbance and blindness. The ophthalmoscopic picture was identical with that noticed in case one, the change seeming to be the greatest in the nerve head, the retina being apparently secondarily implicated and the circulation not much changed. This case followed exactly the same clinical course, vision returning, improving for several weeks, and then gradual failure again, coincidental with the atrophic changes in the nerve head.

DR. HIRAM WOODS, Baltimore—There can be no question in regard to the identity of symptoms in the Jamaica ginger, bay rum and methyl alcohol cases, and that the toxic agent is the same in all. I am not familiar with any form of blindness which gives the clinical features that all these cases show; the intense gastro-intestinal symptoms, absolute blindness after

a few hours or days, gradual return of sight to some useful vision, quick and great variations in visual acuity, and then settling down either into a progressive and permanent atrophy of the nerve, or preservation of some peripheral vision with typical central scotoma. In one of my cases, the man who came under observation early, was in my office one morning unable to see light, but waiked three squares to Dr. Harlan's office and saw well enough to select a chair and sit down in it. Before he left this office his vision had fallen again to light perception.

When I reported my Jamaica ginger cases there was but one on record, namely, Thompson's, published in the *Ophthalmic Record* in 1897. De Schweinitz, in his article in Norris & Oliver's "System," the cases of Thompson and myself, with one he observed, as the only ones then reported. My suspicions were excited as to methyl alcohol through a report given me concerning three cases of wood alcohol intoxication on the relief ship *Solace* during the war with Spain. Of those cases two died and one remained completely blind. I went to the Baltimore firm that made the extract of ginger used by my patients, and secured their formula. It called for 95 per cent. ethyl alcohol. I hope Dr. Harlan will have something to say about the analysis of the ginger obtained from this same firm. I think Dr. Moulton has explained the reason for using it in these preparations, namely, that the refinement of it has made it more economical for such use. Three of my cases came under observation within a few days after the blindness begun. In two there were marked, but not high grades of papillitis; just enough haziness around the edge of the papilla to show but not attract attention unless sought for. All these cases went on to total atrophy.

With regard to the position of the scotoma, of two cases, which I did not see, but notes of which were furnished me, one had a central scotoma finally, while the other had lost all vision except for 20 degrees up, down and out from central fixation. The entire visual field in each eye was lost. The lesion, I think, is usually regarded as an acute retrobulbar neuritis of toxic origin. Yet the occurrence of such a lesion from such a cause is not generally admitted. On the report of my cases (*Ophth. Record*, February, 1899) this was demonstrated by quotations from several authors.

DR. A. B. HALE, Chicago—In Chicago there are a number of men using a new shellac for coating the insides of large hogsheads. I have seen two cases in men who had been lowered into these barrels to apply the shellac; they inhaled the vapor from the alcohol and without any use of the poison in other ways have been seriously affected by it. I have learned recently that this shellac is made with methyl alcohol. These cases present a complete picture of optic nerve atrophy with no essential changes in the retina that could be made out, and it seems to me that we must assume that the nerve itself is as much affected as the retina until the pathologists can disprove it, and can show us why the retina does not show gross changes at first.

DR. CASEY A. WOOD, Chicago—I merely wish to draw the attention of the section to the fact that in these methyl alcohol cases we have another instance of the truth observed a long time ago that most cases of toxic amblyopia are instances of idiosyncrasy. We know that not everybody who indulges in tobacco has tobacco amblyopia, and it is the same with methyl alcohol. Several cases that were reported by Dr. Gifford some time ago should be included in Dr. Moulton's list, although at the time it was not clear that they were due to methyl alcohol poisoning. Six men who had been drinking the same beverages developed toxic symptoms of various grades of severity, but only one of them showed any trouble with his vision. One died before the eye symptoms could have developed, while the other four showed no ocular disturbances.

DR. H. HARLAN, Baltimore—I have had no personal experience with the inhalation of methyl alcohol, but I expect the cases published are all right, because the men, in Baltimore at least, who work in the breweries drink as much beer as they crave and never have temptation to drink wood alcohol. In all these cases we must make allowance for the history, however, as it is difficult to get an accurate history from a man who has been on a debauch. However, the symptoms are so perfectly clear that they can hardly be mistaken. I can not help calling attention to a difference in Dr. Moulton's case where the man drinking it in the morning rode a pony all afternoon and had no trouble until the next day. That is an unusual condition.

In regard to my connection with the demonstration of the fact that it was wood alcohol in all the six or eight cases that Dr. Woods reported, I should say that the analysis, which was made by a careful chemist, has never been questioned, although it has been published in the drug journals and spread all over the country. I have no doubt that for the one case of blindness that has occurred there have been ten cases of death from the drinking of these preparations. When one case that I know of occurred in Chrisfield, Maryland, a prominent citizen remarked that it was very remarkable that blindness should occur, but that they thought nothing of death following its use, because it was nothing unusual for an oysterman to be found dead on the street after drinking these preparations. The pharmacists sell those preparations by the gross in some country districts. One storekeeper in Virginia, made blind by drinking essence of ginger, has instructed his lawyer to settle his case as promptly as possible and for what he can get, giving his reason that he knows of so many cases resulting in death from drinking this firm's preparations that if the knowledge of the suits becomes public there will be so many of them that the firm will be bankrupt and that nobody will get anything. So far as I know, one firm only, in Baltimore, has been guilty of using methyl alcohol in its preparations. Four suits for large amounts have been entered against this firm.

DR. EDWARD JACKSON, Denver—I have seen only two of these cases, and both at a very late stage: Dr. Thompson's case, and one that I recently reported. The clinical history though, and the symptom picture are now so perfectly distinct and characteristic that I think there could be very little question in an individual case as to the diagnosis. I know of no other condition quite similar to it. I think that disturbance of the circulation that has been referred to in connection with the other symptoms, might be of significance when we compare this affection with that produced by quinin. Quinin blindness usually does not come on immediately, but rapidly after the other symptoms have subsided, and there is great disturbance of the circulation.

Experiments point also to the essential likeness of the lesions in the two conditions. Dr. Friedenwald stated his side of the case as to the lesion probably being primarily in the retina very modestly. Uthoff reported that all the cases of toxic amblyopia examined showed changes in the optic nerve. But that they were all very old cases, and there are few conditions of such long standing where the microscope will throw any light upon the original lesion. On the other hand, all of the experimental work indicates that the retina is affected long before any signs appear in the optic nerve. As regards the cases Dr. Ray reported, it seems to me they also confirm the view that it was originally a retinal lesion. In the case he saw early there was some change in the retina, some noticeable edema he said. I remember also a case afterward reported by Dr. G. M. Gould at the First Pan-American Congress, as one of hereditary optic atrophy, in which I saw early not only a haziness of the retina, but some retinal hemorrhages. We must remember that the nutrition of the retina is closely allied to the nutrition of the nerve fibers; and it seems not improbable that there may occur both a retinal lesion, and in certain cases a retrobulbar neuritis. But the latter is probably secondary to the changes produced in the ganglion cells.

DR. R. W. MILLER, Los Angeles—I have had no opportunity of observing any pronounced case of blindness due to methyl alcohol, but recall a case that is interesting in this connection occurring during an accouchement period. The nurse, by mistake, used wood alcohol for bathing, instead of the product made from grain. The entire quantity used was six or eight ounces during a period of three or four days, grain alcohol having been used for previous baths. The fact was not noted until the nurse had finished her duties and gone home. The

first thing that attracted attention was an intense dermatitis. The patient experienced some nausea and anorexia, and slight impairment of vision. About ten days after the baths, she mentioned the dimness of vision, at which time the aid of the ophthalmoscope was invoked. No pronounced fundus changes were noted, although the discs appeared slightly paler than normal. Whether this apparent pallor was due to the action of the alcohol would seem somewhat doubtful. The fact that wood alcohol is not absorbed freely by the skin doubtless saved the patient's eyes from the usual pronounced toxic effect. It seems to me that in all cases in which wood alcohol or "Columbian spirits" is sold or dispensed, there should be a statute requiring that a poison label be placed upon the bottle or other container used.

THE INDICATIONS FOR OPERATION IN CALCULOUS NEPHRITIS AND URETERITIS.*

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Recent advances in the diagnosis of calculus conditions of the kidneys and ureters show that more than half the calculi that originate in the kidneys pass into the ureters before they occasion sufficient symptoms to make their presence known. This increased frequency of ureteral calculi, which a more accurate method of diagnosis has shown, and the numerous small calculi that are passed with but slight symptoms, make it probable that many such calculi remain throughout life in the urinary tract, neither producing notable symptoms, nor interfering with the function of the kidneys.

Although these calculi may remain quiescent in the ureter and give rise to no functional derangement, they may, on the contrary, entirely destroy the function of one kidney without the recognition of the fact by the patient. The onset of calculous anuria, especially unilateral anuria, so closely mimics in symptomatology the process of recovery, that the integrity of the kidney and ureter, after an attack of renal disturbance, could not be assured without operation, or, at least, the determination of the persistence of a bilateral urinary flow. Operation under such circumstances was imperative to exclude calculi and to guarantee the functional efficiency of the kidney and ureter. Delay without the determination of the absence or exact position and size of the calculi placed the patient in very serious danger of the loss of one kidney and left the diagnosis incomplete with no guarantee for the future.

It is the Röntgen method of diagnosis that has shown the greater frequency of ureteral calculi. Their detection does not, however, constitute an indication for operation. The increased ratio of ureteral to renal calculi is due to their detection and recognition. They must have existed in the same relative proportion previously. The absence of symptoms, that would lead to their recognition, shows how tolerant the ureters must be. It shows that these calculi may be allowed to remain in the ureter, under certain conditions, without grave danger. It therefore sanctions a conservative method of treatment, when that method is rendered safe by accurate knowledge of the condition that is present. The accuracy and detail afforded by the Röntgen method of diagnosis form this safeguard and the rational basis for a differentiation between the cases demanding immediate operation, and those in which an expectant conservatism under strict supervision will often result in the passage of a calculus and complete recovery. It makes it rational to leave to natural methods, what has been recognized as possible for nature to accomplish without injuring the kidney.

The differentiation between the cases that demand immediate operation and those in which a conservative, expectant line of treatment should be pursued, is based upon the results of the Röntgen method of diagnosis. The position and size of the calculi are determined by it, and when taken in conjunction with the symptomatology, furnish accurate data upon which the indications for operation can be based.

The accuracy of the Röntgen method of diagnosis has been demonstrated by the confirmed diagnoses in 165 cases which the author has examined by this method. The negative diagnoses have been found to be as accurate as the positive. The method, when properly employed, is so nearly absolute in its accuracy that its findings are safe data upon which to base operative procedures. Calculi, both multiple and single, bilateral and unilateral, have been found in 48 cases, while, contrary to all previous statistics, over 50 per cent. of the calculi have been found in the ureter. This of itself attests the accuracy of this method.

The wisdom of adopting an expectant, conservative line of treatment in appropriate cases where small calculi are found in the ureter has been shown by the passage of minute calculi, *per vias naturales,* in 3 (now 9) cases where this course has been advised and followed, and in 4 other cases, in which calculi that had been detected were passed before the meditated operation was performed.

The symptoms that should suggest this line of treatment in cases where small calculi have been located in the ureters are: a fairly constant dull ache in the lumbar region or along the line of the ureters, with recent and repeated attacks of more acute pain, with or without microscopic evidences in the urine of the presence and recent progression of a calculus. If the Röntgen picture also shows the shadow of an enlarged hydro- or pyonephrotic kidney, and tenderness can be elicited over the kidney and along the line of the ureter, they make more probable the subsequent passage of the calculus.

The dull, constant ache in the lumbar region, and, if detected, the shadow of the hydronephrotic kidney, can be considered as indicating the presence of functional activity in the kidney and of a *vis a tergo* that will eventually push the calculus through the ureter. The shadow of an enlarged kidney is also confirmatory evidence of the blocking of the ureter. The recent and repeated acute exacerbations of pain in the line of the ureter mark the steps in the progression of the calculus, and promise future attacks that will end in its expulsion. They are the results of the overdistention of the kidney and ureter, while the hydronephrosis is of the "flush tank" variety, the amount of urine fluctuating from time to time as the calculus is pushed along, or the dilation of the ureter permits the urine to pass it. The fluctuating size of the kidney often leads to the diagnosis of a floating kidney, as the change in size is mistaken for a change in position.

These symptoms, in conjunction with the localization of a small calculus or calculi in the male ureters by the Röntgen method, are sufficient indications for adopting a conservative, expectant course of treatment. They sanction a delay, since they furnish absolute knowledge regarding the position of the calculus, so that any urgent symptom can be met by immediate operation upon a

* Read at the Fifty-second Annual Meeting of the American Medical Association, in the Section on Surgery and Anatomy, and approved for publication by the Executive Committee of the Section: Drs. W. J. Mayo, H. O. Walker and A. J. Ochsner.

lesion that has already been determined. During such expectant treatment the condition of the kidney must be carefully watched, by frequent urinalyses and quantitative estimations of the amount of urea.

The employment of all exploratory instruments in the male where there is no infection, is to be avoided. The segregator, the cystoscope, the vesical sound and the ureteral catheter are all valuable instruments in diagnosis, but their employment in aseptic cases is a question that is still *sub judice*.

Urinalysis can be considered only as giving confirmatory evidence. A normal urine is not incompatible with the presence of a calculus. A number of cases examined by the author and found to be subjects of calculi have had urines that were normal, while in others the slight amount of albumin present could have been considered hardly more than a physiologic variation. In others the negative diagnosis by the Röntgen method was proved by operation to be correct, and yet the urine showed marked morphologic changes.

Although this method of treatment is applicable to the female, the indications in these cases are not quite as definite. The ureters are more accessible in the female, and comparatively simple operations often hasten the passage of the calculi. Recent cases have shown that the Röntgen examination is capable of detecting, not only minute calculi in the pelvic portions of the ureters, but also phleboliths in the venus plexus of the broad ligament, in the veins of the vaginal wall, and in other pelvic veins. In one case, a phlebolith was found in the vaginal wall, in the second, 8 were found, as the operation showed, in the veins of the broad ligament. Although these phleboliths can be differentiated in most cases from ureteral calculi by their position and more general distribution, cases will occur in which the differentiation will be difficult. In such cases the expectant treatment may lead to the destruction of a kidney as the result of a complete unilateral anuria from the impaction of a calculus and the supposition that it is a phlebolith. In such cases the passage of urine from the ureter of the suspected side should be demonstrated by a cystoscopic examination, while the differential diagnosis can be made by using the wax-tipped ureteral catheter. The differentiation is, however, already made, and the presence of a calculus in the ureter assured, if, in addition to its shadow, the skiagraph shows an enlarged or hydro- or pyo-nephrotic kidney on that side.

The expectant treatment can be carried out as rationally and safely in the female as in the male. The indications for immediate operation are, however, greater, as there are simple and safe operations that will in the majority of cases hasten the passage of the calculus. This is more especially true of cases where suppuration exists, and as a consequence the danger of infecting the ureters can be neglected.

In the female, therefore, the presence of infection should be considered as an indication for operative procedures, or the presence of a calculus or multiple calculi, so situated that it is improbable that they will be passed *per viam naturalem*. Complete or unilateral anuria is, of course, a self-evident indication for immediate operation.

In the male the indications for operation are any form of anuria or threatened anuria, or the detection of calculi that are too large to pass, accompanied by symptoms that indicate serious injury to the kidney. The presence of suppuration and small calculi in the ureter are not necessarily indications for operation in the male. The gravity of the operative intervention should be carefully considered, especially where infection is already present. In many such cases it is possible to control the suppurative process by the administration of urotropin or some other urinary antiseptic, until the small calculi have passed. The graver risk of operation may be avoided, and, if operation becomes necessary, the patient will be in a better condition. The presence of multiple calculi does not always indicate operation. A patient recently examined by the author was found to have 6 calculi in the right ureter, just above the bladder. The symptomatology pointed altogether to a vesical calculus. The bladder had previously been explored, but no calculi found. Subsequent to the Röntgen examination the patient passed 2 of the calculi.

Besides the influence which this new method of examination has exerted upon the indications for operation, its accuracy has led to modifications in operative procedures. The field of operation has been limited, and the necessity for exploratory incisions into apparently healthy kidneys in the search for calculi has been obviated. Undoubtedly exploratory operations are valuable, and as necessary in many cases now as formerly, but the actual incision into the kidney is now only justified by the previous detection of a calculus by the Röntgen method, or some macroscopic pathologic lesion.

During the operation for the removal of a renal calculus, the necessary amount of trauma has been minimized. The calculus can usually be located in one or other of the calyces, or in the pelvis of the kidney. The necessary incision can thus be made directly upon the calculus and of just sufficient size for its removal. There is no longer need of splitting the kidney from pole to pole, or for diligent or prolonged search. The diagnosis is complete. The removal of the 1 or more calculi shown in the skiagraph assures the completeness of the operation and renders further search and the resulting trauma unnecessary. The danger that menaced the patient when a nephrectomy was necessary on account of calculus, or of any other form of nephritis, because the other kidney might be involved, is avoided, because all calculi in both kidneys and ureters can be detected or excluded. The hydronephrotic kidney, resulting from the blocking of the ureter by a calculus impacted at the pelvic brim, is relieved by an operation directly upon the ureter without opening and exploring the kidney and running the risk of a urinary fistula.

The operations for these ureteral calculi are direct, without the lumbar incision carried downward when the sound introduced through the kidney chanced to detect a calculus, or the obvious blocking of the ureter made it necessary to determine the cause.

Ureterolithotomy has been successfully performed in a number of cases in which the author has detected calculi in the ureters. It can be either transperitoneal, retroperitoneal, transcystic, after a suprapubic cystotomy, or the ureter may be opened through vaginal vault.

The precise localization of calculi in the ureters has rendered available, especially in the female, methods of operating directly through the ureters that were previously restricted to those cases in which it was possible to determine the presence of calculi in the ureter by digital examination, or by the employment of Kelly's wax-tipped catheters.

These methods consist in washing the calculi out by passing a ureteral catheter above them, by dilating the ureter with suitable conical bougies, and by crushing. All of these methods have served to dislodge small calculi. In addition may be mentioned massage or the

crushing of calculi situated over the pelvic bones, in suitable cases, where they can be reached.

All of these intraureteral methods may be employed as well in the male by a modification recently suggested.[1] The introduction of any of these instruments into the male ureters, after their passage through the urethra, is secured by guiding them into the ureteral orifices by an instrument or finger introduced through a suprapubic cystotomy wound. If these measures are not successful, the wound may be utilized for a transcystic ureterolithotomy.

One of the gravest problems of renal surgery is the determination of which kidney or ureter to operate upon and at what point, in cases of complete and sudden anuria. The necessity for immediate operation is urgent, delay is fatal, so too is operation upon the wrong kidney in many cases. The symptoms are often too misleading or absent to be of value. The previous history is unreliable. The value in such case, if due to calculus impaction, of the Röntgen examination, is readily appreciated. The calculus is detected and the operative procedure directed to the exact lesion. If the outlines of the kidneys can be shown, as is possible in most cases the enlargement of one or other kidney aids in determining which to operate upon first.

Before any operative procedure for the removal of a small calculus, detected by the Röntgen method, is undertaken, a thorough examination of the bladder with a Bigelow's evacuator should be made, with the patient under the influence of an anesthetic. This is essential, because such small calculi are liable to pass into the bladder between the time of their detection and the time of operation. The relaxation resulting from the anesthesia may also hasten their passage. The examination should be repeated at the close of the operation, as such small calculi can be crushed or pushed into the bladder during the manipulations of the operation.

The effect of the Röntgen method of examination upon the indications for, and methods of operating in cases of suspected renal or ureteral calculus have been very marked. The precision attained by this method has rendered a conservative method of treatment safe and rational where it would have been previously bad surgery. It differentiates between those cases that will recover under medical treatment, where calculi have been suspected, and those where the patient's safety depends upon immediate operative intervention. Small calculi which it shows are favorably situated, may be allowed to remain, to pass by nature's methods in cases where the other conditions justify such a course of treatment. The risk involved in the delay has been rendered less grave than the operative risks in many of these cases. The field of operation has been localized to the exact region of the lesion, and the operative trauma reduced to a minimum, as the calculi can be removed through smaller incisions without the necessity of further explorations and yet the completeness of the operation is assured. The possible presence of calculi in other portions of the urinary tract is eliminated as a complication of all renal operations. In exploratory operations, unless a calculus has been detected, incision into the substance of the kidney is contraindicated, unless for other obvious pathologic lesions.

1. Annals of Surgery, April, 1901.

Creation of a Medical School in Tonquin.—The French have established a medical school in Tonquin for the benefit of the natives. The faculty consists of two physicians, one assigned from the army, and the other a civilian.

ACUTE CHOLECYSTITIS AND CHOLANGITIS AS A COMPLICATION OF GALLSTONES.*

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CHICAGO.

In his treatise on gallstones Hans Kehr, whose experience in this special field has been such a rich and varied one, says: "Almost every case of cholelithiasis brings surprises of a remarkable sort. The pathological anatomy of this disease forms the foundation for its special diagnosis and treatment. Without an exact comprehension of the pathology, we can neither make a good diagnosis nor initiate a rational treatment." Stimulated by these words, it will be my purpose to add a contribution rather to the surgical pathology of this subject than to its treatment. The case which I desire to report, and which I will discuss in detail later, was one of the surprises of which Kehr speaks. It is, in brief, that of a girl 17 years of age, who was operated upon for gallstones, and purulent cholecystitis, in which the colon bacilli were found in pure culture, and who died three days after the operation, with symptoms of cholemia, whose liver showed evidences of a diffuse hepatitis and non-suppurative cholangitis, which undoubtedly disturbed the hepatic function to such an extent as to cause death. The history, in detail, is as follows:

J. R., aged 17, single, tin-polisher by occupation, was admitted to the service of Dr. Louis A. Greensfelder, in the Michael Reese Hospital, on Aug. 12, 1899. No history of previous illnesses. Family history negative. For the four weeks prior to admission she had been complaining of a pain in the lower posterior part of the chest. She had not felt as strong as usual, but not ill enough to remain in bed. Three days before admission, this pain became suddenly more severe, and moved around the right side of the chest to the right hypochondrium, in addition to its being felt in the back. Since this attack she had had fever, vomiting and constant pain, the latter increased by each respiratory movement. Bowels constipated. No appetite. The examination revealed a slight jaundice of the scleræ. The entire right hypochondriac and lumbar regions showed rigidity of the abdominal walls, and great sensitiveness to pressure, being most intense over the region of the gall-bladder. At this point one could feel a firm mass, about the size of an outstretched adult hand, not movable, and very sensitive. A diagnosis of gallstones was made.

On Aug. 14, 1899, Dr. Greensfelder made an incision along the right border of the rectus. Upon opening the peritoneal cavity, the tense and distended gall-bladder was exposed directly beneath the line of incision. Its surface was smooth and there were no adhesions. The serosa of the gall-bladder was stitched to the parietal peritoneum, and the wound cavity packed with gauze.

Aug. 16, 1899. The patient was again anesthetized (chloroform used in both operations). After the adhesions between the gall-bladder and abdominal wall were found to be firm, the exposed portion of the former was incised, and a quantity of glairy, clear fluid and pus escaped. With a forceps six faceted (mixed cholesterin and pigment) calculi were removed, and drainage tube inserted after palpating and sounding for other calculi in vain. At the time of admission (August 14) the patient's temperature was 100.4, pulse 120. Shortly after she had a soft, light yellowish, bowel movement. The following day her fever rose to 102. The examination of the urine showed the absence of sugar and albumin, and of any renal elements. Just before the first operation a twenty-four hour specimen of urine showed 2.1 per cent. of urea;

* Read at the Fifty-second Annual Meeting of the American Medical Association, in the Section on Surgery and Anatomy, and approved for publication by the Executive Committee of the Section: Drs. W. J. Mayo, H. O. Walker and A. J. Ochsner.

otherwise negative. After the operation her temperature remained 101; she passed eighteen ounces of urine with a small amount of albumin, and 2.6 per cent. of urea, and vomited only once. After the second operation (when gall-bladder was opened) the temperature still remained 101 to 102 during the first twenty-four hours. She was very restless, and passed a smaller quantity of urine. On August 18 she had a good bowel movement, and expelled flatus freely. Up to 3 p. m. her temperature varied from 101.4 to 102.4. Suddenly it rose at 3 p. m. to 103.2, pulse 128. Some twitching of the muscles of the face was observed. She then became wildly delirious, and later unconscious. A slight general icteric hue, which had been noted on the previous day (17th), now became very marked. At 5 a. m. on the 19th her temperature had risen to 105.4 (rectal), pulse 160; at 6:30 to 107.4, pulse 180, and just before death (at 7:35 a. m.) it rose to 108.2, pulse too rapid to be counted. In the twelve hours prior to death the prominent symptoms were twitchings, first of face, then of entire body, restlessness, delirium, rapidly increasing jaundice, decreased quantity of urine, high temperature (to 108.2), and pulse (180), and marked dyspnea. The abdomen was never at any time tense or tympanitic. Bacteriological exam-

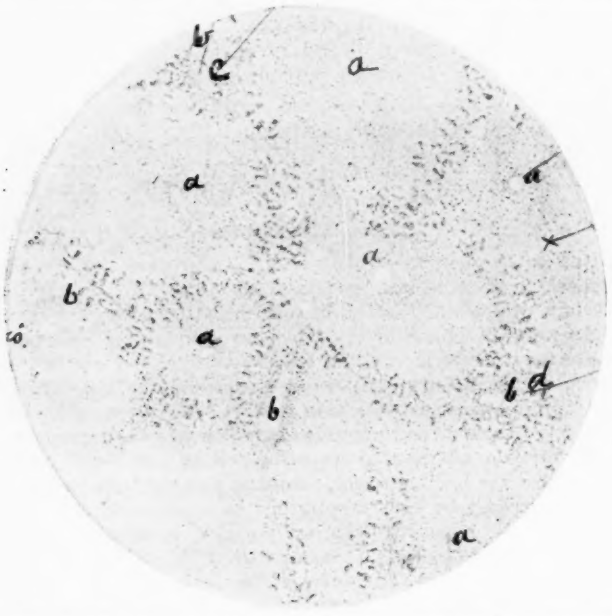

Fig. 1.—Section of liver, stained with carbol-fuchsin, showing extensive necrosis of parenchyma, due to colon bacillus; cholangitis complicating gallstone and purulent cholecystitis. *a*, Intralobular vein: *b*, bile vessel; *c*, infiltration and newly formed connective tissue around bile vessel: *d*, still preserved parenchyma: *x*, necrotic parenchyma. (Low power.)

ination of the pus taken directly from the gall-bladder at the time it was opened, on August 16, showed the presence of the colon bacillus alone in pure culture.

The autopsy was conducted by the writer about three hours after death. Unfortunately, permission to perform a complete autopsy could not be obtained, so that we were obliged to confine the examination to the immediate vicinity of the wound. There were no signs of reaction about the latter. The gall-bladder was found adherent to the edges of the wound in the abdominal wall. After separation of the adhesions, inspection of the peritoneum covering the intestines, liver and parietes showed no evidences of any infection. It was smooth and shining. [The incision in the gall-bladder was one and one-half inches long, and the entire length of the viscus five and one-half inches. Its diameter at the widest portion one and three-fourths inches. The wall was greatly thickened, three-fourths of an inch.] The mucosa showed evidences of an intense inflammation, being covered by a greenish layer of mucus and pus. There was marked hyperemia and some scattered hemorrhages. At the neck of the gall-bladder, blocking the orifice of the cystic duct, and lying in a pouch-like diverticulum, was a gallstone the size of a small marble, separated from the remainder of the gall-bladder by a fold of mucous membrane. The cystic duct was filled with clear mucus, the hepatic and common ducts showed no changes. Their lumina were not increased. There were no evidences of any pressure having been exerted by the stone which had remained upon any of the bile ducts. The liver was somewhat enlarged, fairly firm. The cut surface was uniformly yellow; the lobules distinctly marked, each surrounded by a hyperemic zone. Cultures made from inoculations taken from the surface of the liver showed the colon bacillus in pure culture. Microscopically, sections of the liver stained with various solutions showed best of all in those stained with dilute fuchsin, a remarkable picture (see Figs. 1 and 2). Under low power one could see that only the peripheral zone of each liver acinus took the stains, the contrast

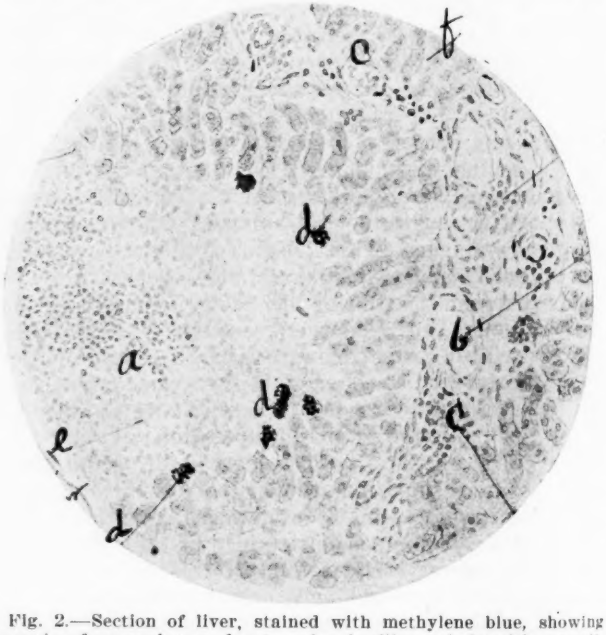

Fig. 2.—Section of liver, stained with methylene blue, showing necrosis of parenchyma, due to colon bacillus; cholangitis complicating gallstone and purulent cholecystitis. *b*, Interlobular bile vessel; *c*, newly formed connective tissue and round-celled infiltration around interlobular bile vessel; *d*, bile pigment; *e*, necrotic liver cells showing nuclear fragmentation; *f*, still preserved cells in periphery of acinus. (High power.)

between it and the lack of color of the remainder being very striking. Under a higher power one could see that there had been an extensive necrosis of the liver cells in two-thirds of each acinus, with marked nuclear fragmentation, etc. Around the interlobular bile vessels there were evidences of proliferative inflammation, and some round-celled infiltration between the columns of still living liver cells in the periphery of the lobule. The latter were loaded with bile pigment. We have thus extensive parenchymatous changes involving over two-thirds of each acinus, and of a necrotic nature. Few of the cells take the stains. In addition there is a well-marked cholangitis of the finest bile vessels.

In reflecting upon this interesting case, the questions which arise are: Why should a patient die with symptoms of cholemia, or, as it is now more properly called, hepatargy, i. e., liver inactivity, whose only apparent complaint had been gallstones, complicated by a purulent cholecystitis? Before proceeding to answer these questions permit me to briefly review some of our knowledge

of the pathology of gallstone disease, in order that we may profit by our deductions.

1. Do the bile passages normally contain micro-organisms? In healthy animals Netter, Naunyn, Leubuscher, Gilbert and Girode found the bile free from micro-organisms. This is especially true for the bile in the gall-bladder, cystic and hepatic ducts; not so for that in the common ducts. On the other hand, Ehret and Stolz found that in a considerable percentage of the cases when bile was taken under all precautions from the gall-bladder of healthy guinea-pigs, dogs and cows, the bile contains micro-organisms. Yet they found that these were not present in sufficient number to cause a peritonitis.

In human beings, Fraenkel and Krause examined the bile in 130 cases at autopsy, and found it sterile in 105. In 11 cases of cholelithiasis examined during life it was sterile in 5. Mieczkowski made cultures from the bile of 15 persons during life. He obtained the bile during laparotomy by aspiration of the gall-bladder. It was found sterile in all cases. In 23 cases of gallstones operated upon by Mikulicz, the bile contained organisms 18 times; only 5 were sterile. The colon bacillus predominated, occasionally associated with the staphylococci and streptococci. He stated that we must regard every case of gallstones as infected. The micro-organisms may be very virulent and cause peritonitis, or they may be less virulent and be absorbed by the peritoneum. Miyake found micro-organisms in only one dog in 55 dogs and 21 rabbies whose bile he examined. From these various observations, made upon animals and human beings, both during life and at autopsy, we can conclude that in the majority of cases bile is sterile under normal conditions. This holds for the entire bile passages, with the exception of the common duct, close to the duodenum, where many investigators have found micro-organisms even when there is no obstruction to the flow of bile.

2. The next question which interests us is, whether bile acts as a bactericide or whether micro-organisms find it a good culture medium. Dominici and Rodet found that the organisms which cause infections of the bile passages thrive in bile.

Maly and Emich, Leubuscher, Röhman, Bates, Fraenkel and Krause, and Mieczkowski observed that both typhoid and colon bacilli develop well but slowly in human bile. If the bile is thick, it especially favors the growth of colon bacilli.

Ehret and Stolz maintain as the result of their experiments that fresh non-sterilized bile has bactericidal properties, confirming the observations of Mosse, and finding that it acts as a poor culture medium.

Mignot and Miyake found that the colon bacillus lives for many months in the gall-bladder. It decreases in virulence; but regains it again readily. Miyake found that bacteria like typhoid and colon bacilli, streptococci and staphylococci, which are usually normally present in the intestine, develop either very well or moderately well in the bile. He injected bacteria into the gall-bladder; they could be found 10 to 214 days later in pure culture, all other organs being sterile.

Talma, the latest writer on this subject, states that the bile acts mildly toward the colon bacillus as a bactericide, but much more strongly toward the diphtheria and typhoid bacilli. In the majority of cases the bile acts as a poor culture medium for the colon bacillus. The bactericidal action depends more upon the secretion of the gall-bladder than that of the bile ducts. There are many cases reported where living typhoid bacilli (Fütterer, Lauriac, etc.), were found in the gall-bladder months and years after an attack of the disease. Altogether we may conclude that bile contains a substance which inhibits the growth of the majority of colon and typhoid bacilli. The number of organisms has great influence upon their fate. The epithelium of the bile passages and the liver cells resist infection greatly. Bile acts as a poor culture medium.

3. The next question which we must try to answer is: How and when does infection of the bile passages occur?

This may occur either through the blood (descending or hematogenous), or be an ascending one along the common duct from the duodenum. The latter is far more frequent clinically. The hematogenous variety of infection through the systemic circulation undoubtedly is possible, as in typhoid, but it is comparatively rare. A number of experiments have been made by injecting large quantities of bacteria into the general circulation (Miyake, Cushing, Guarneri, Queri and Fütterer), but so long as there is no obstruction to the flow of bile, which might cause stagnation, the liver is able

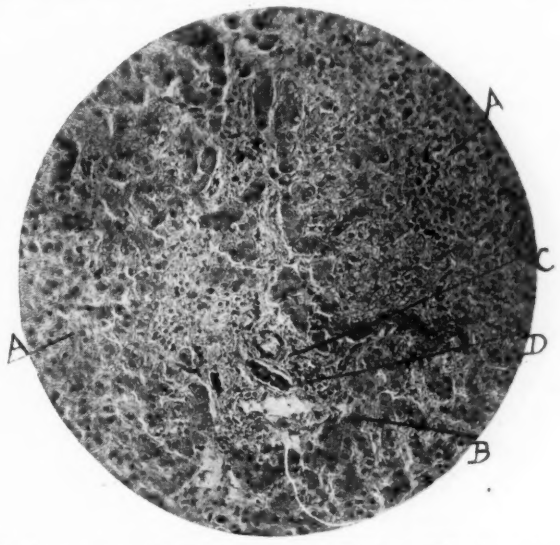

Fig 3.—A, necrotic liver cells; B, cells in periphery of acinus, still healthy; C, newly-formed inflammatory tissue around interlobular bile duct; D, interlobular bile duct. (Low power.)

to excrete a large number of organisms through the bile.

Ferraresi and Guarneri found this to be true for the glanders bacillus; Corrado, Nicati, Oemler, Strauss and Chamberland, Oreste, Pernice and Alessi, Bernabei proved it for staphylococci and pneumococci; Friedlaender, anthrax, cholera and typhoid bacilli. Blachstein, Letienne, Biedl and Kraus, and Menzel proved it for streptococci and colon bacilli.

The ascending variety, where the bacteria invade the liver and gall-bladder along the bile ducts, is unquestionably the most frequent. When the common duct is ligated above the ampulla, the same organisms are found inside of a few days in the liver and bile which are present in the duodenum and in that portion of the common duct distal to the ligature (Homan). This was found true for typhoid and colon bacilli. When these organisms were injected into the common duct below the point of ligation, they found their way very rapidly past the ligature into the liver. The bile which is stagnant above the obstruction (ligature) offers a favorable medium for the bacteria. Infection, with virulent material, when the flow of bile is not interfered with, is without serious consequences.

Even when the common duct is ligated between two ligatures (Ehret and Stolz), organisms multiply rapidly in the bile ducts above the point for a few days, but gradually disappear as the result of the bactericidal action of the stagnant bile. Aseptic foreign bodies introduced into the gall-bladder, on account of interfering with the normal muscular action of the organ, greatly favor the growth of bacteria. Under such circumstances Ehret and Stolz found a great increase in organisms from time to time. When the normal gall-bladder not containing any stones contracts, it can empty its secretion unhindered into the intestine. When the bladder can not contract in a normal manner, on account of the stones it contains, a certain amount of bile remains stagnant between the foreign bodies, and favors the growth of bacteria. Of course, foreign bodies may lie during an entire lifetime in the gall-bladder and never give rise to symptoms until the bile becomes infected, when the typical gallstone colic occurs. The frequency with which cholecystitis and cholangitis occur during typhoid is well recognized now as the result of a descending infection. We are now able to state from

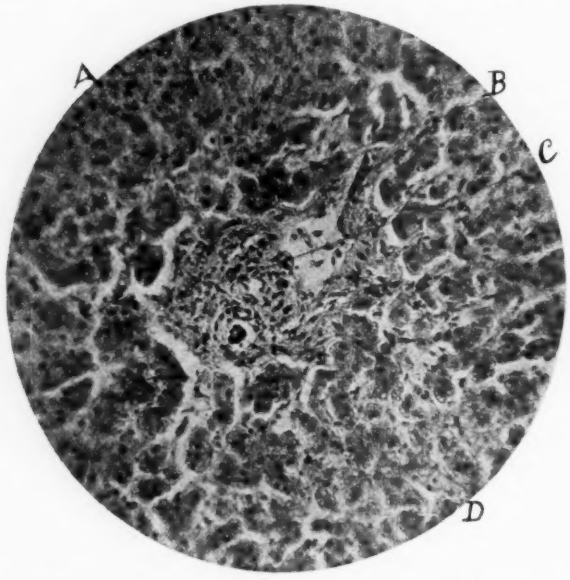

Fig. 4.—A, necrotic liver cells; B, cells in periphery of acinus, still healthy; C, newly-formed inflammatory tissue around interlobular bile duct; D, interlobular bile duct. (High power.)

experiments made by a number of reliable observers that any interference with the contractility of the gall-bladder musculature, or the presence of foreign bodies in the gall-bladder, or ligating the common duct, causes a marked increase in the number of micro-organisms in the bile passages. The ordinary infection in gallstones is almost invariably an ascending one, along the common into the cystic and hepatic ducts.

4. The next question of interest in this connection is: What is the relation between infection and gallstones, and what is the effect of infection of the bile passages (cholecystitis and cholangitis) upon the liver parenchyma?

Thermal, chemical or mechanical irritation of the gall-bladder, simple stagnation of the bile, do not produce gallstones, according to Miyake (whose experimental work on the artificial production of gallstones deserves the highest praise). When sterile foreign bodies are introduced into the gall-bladder there is a considerable increase in bacteria, and some incrustation of the bodies with a substance resembling gallstones. But when the bile is rendered stagnant (partially obstructing the cystic duct), and a virulent culture of colon bacilli injected into the gall-bladder, Miyake found in two animals typical gallstones, one year and ten months later, respectively.

Of prime importance in the formation of stones, then, is infection, usually with the colon or typhoid bacillus. These infective agents set up a catarrh of the gall-bladder and the bile ducts, and when the nuclei of the stones, which most frequently consist of masses of epithelium and fat drops, are allowed to remain in the gall-bladder, through some cause which favors bile stagnation, gallstones are formed. We thus have a complete confirmation of the theories of Naunyn.

When colon or typhoid bacilli are injected into the gall-bladder in small number (Talma), they soon find their way along the bile ducts into the liver, and cause extensive changes in the parenchyma and in the gall-bladder, exactly similar to those which are present in the case I have reported, namely, evidences of severe cholecystitis, necrosis of liver cells in the central portions of each lobule, and interstitial changes along the interlobular vessels.

Our observations of infection of the bile passages in the human beings has been confirmatory in every detail

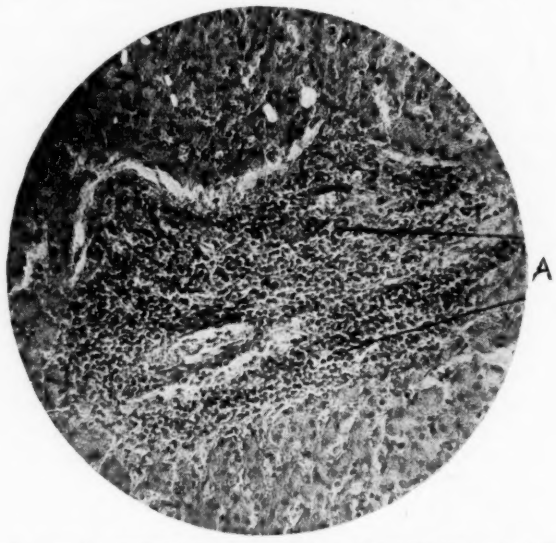

Fig. 5.—A, Extensive round-celled (inflammatory) infiltration around interlobular bile vessel. (High power.)

of the work on animals. The latter has assisted us greatly in comprehending the former. Gallstones may remain in the gall-bladder for years without giving rise to the least suspicion of their presence. When an infection has been added, an inflammation of the gall-bladder is set up (cholecystitis), and the patient has a typical gallstone colic. The stones, unless they are very small, are rarely expelled, but are driven toward the neck of the gall-bladder. The serous effusion frequently changes to a purulent; in other words, there is simply a question of the degree of infection. Upon it depends the fact whether we have a serous, purulent or gangrenous cholecystitis. In 50 cases examined bacteriologically at the time of operation, Petersen found the colon bacillus either alone or associated with ordinary pus cocci in 46 cases. They were present even when the bile was clear and when there were no visible changes in the gall-bladder. The serous variety frequently subsides, but in the purulent the organisms may spread along the bile ducts into the liver, producing either a purulent or non-purulent cholangitis. The latter process is especially likely to occur when any cause for bile stagnation, for exam-

ple, stone in common duct, exists. The clinical picture of the cholecystitis usually predominates, so that the cholangitis, with its grave influences upon the liver parenchyma, is masked. The course of a cholangitis seems to be most acute with virulent colon bacilli, more chronic with staphylococci and streptococci (Quincke).

The symptoms of cholangitis complicating gallstones are that after one or more attacks of colic there is a more or less marked tendency to fever, icteric hue and dull pain in the liver region. The fever may be of the type described first by Charcot, and frequently misleadingly called hepatic intermittent fever. The more or less regular recurrences of chill, fever and sweat resemble malaria greatly. In this variety there may be multiple abscesses in the liver (purulent cholangitis). Later the clinical picture may be that of a septicopyemia, with endocarditis, etc. Pick noted during the attack a marked decrease in excretion of urea and an increased leucocytosis.

Symptoms of Cholecystitis.—This, as stated above, may be either serous, purulent or gangrenous. There is always pain over the gall-bladder, radiating to the shoulder, no icterus, as a rule, no enlargement of the liver. There is usually some fever, especially if there is pus present. It is not of the septic type, as in suppurative cholangitis. Generally a tumor can be felt, but where the process has existed for some time the gall-bladder may shrink so that none can be felt. When present it may be quite movable.

The non-suppurative form of cholangitis complicating gallstones is not characterized by as marked emaciation, rise of temperature or septic symptoms. The course is more prolonged and there is not apt to be much jaundice. Cholangitis is not so important of itself as that its sequelæ, abscess formation and parenchymatous changes in the liver, may be very serious.

The prognosis of cholangitis and cholecystitis depends upon the cause. Both are rarely found without gallstones. Typhoidal cholecystitis and cholangitis usually subside without any complications save adhesions of gall-bladder to adjacent organs. The appearance of these two complications in the course of gallstones should influence our prognosis greatly. The grave anatomic changes in the gall-bladder and larger bile ducts, such as adhesions, ulceration and greatly thickened walls, may cause symptoms sometimes classed as pseudo-relapse symptoms for years after an operation. The prognosis of the suppurative type of cholangitis is, of course, extremely bad. That of the non-suppurative is shown forcibly in the case I have reported above, and we should always be prepared for surprises of this kind. The necrosis of liver parenchyma as a result of the biliary infection results, first, in paralyzing the ability of the liver cells to get rid of bacteria and toxic products of the body, and, secondly, in reducing to a minimum the formation of urea or allied products.

The death of the patient whose history I have given, and the study of whose case has formed the basis of this paper, was undoubtedly due to that condition which was formerly called cholemia. It was given this name because it was thought that the blood contained bile in large amounts. We now know that it is a form of auto-intoxication, due to a lack of functional activity of the liver cells, so that toxic products are retained in the system. Hence, the name hepatargy or liver inactivity has been proposed to designate the group of symptoms chiefly of a nervous character, as in our case. They may develop gradually or suddenly, resembling greatly the symptoms of uremia or diabetic coma. The acute onset probably expressed, according to Quincke, the moment when the already incompetent liver is no longer compensated by the kidney and other organs. These symptoms are delirium, high temperature, muscular twitchings, or even general convulsions. They may be present in a lesser degree in some cases, and entirely disappear. Usually their onset precedes death by a few days. The condition is especially liable to occur when the common duct has been obstructed, so that toxic products can no longer be carried off by the bile. In our case there was no direct closure to be found, but it is well known that a permanent closure of the common duct can be caused by a marked, long-continued dilatation of the gall-bladder, as a result of displacement of the cystic duct by large stones, which are either present in it or in large diverticula. But it is not necessary to ascribe the hepatic intoxication to other causes than a disturbance of the liver cells, as the result of infection.

I believe that there is every reason to ascribe the nervous symptoms shown by our patient to auto-intoxication, or liver inactivity, interfering with the formation of urea and elimination of toxic products and bacteria by the liver cells and bile, and that it is an example of one of the results of infection complicating gallstones. The case teaches, first, that in every case of gallstones we must try to make an exact anatomical and pathological diagnosis, in addition to that of gallstones. Whenever pus is present in the gall-bladder, especially if the symptoms have been acute, our prognosis should be guarded. A purulent cholecystitis is almost invariably accompanied by a cholangitis, which, as in our case, need not be purulent. It may be said that whenever gallstones are accompanied by temperature we should think of a concomitant infection of the intrahepatic bile ducts, with its resultant pernicious influence upon the liver parenchyma. Such a change may cause sudden death through hepatargia.

In order to relieve a cholangitis which might exist in addition to a cholecystitis, it has been proposed, first, by Kehr, to drain the hepatic duct, for in some cases, even though the obstruction in the common duct has been removed, the sepsis continues. I believe that in our case the blocking of the cystic duct through the stone which lay in a diverticulum of the gall-bladder prevented the septic bile from flowing out through the abdominal wound.

In conclusion, I may say that the treatment of an empyema of the gall-bladder complicating gallstones, should never be one of delay. They should not be treated by internal means, but referred to the surgeon as soon as a diagnosis has been made. As soon as a diagnosis of gallstones in general is made, since we know the dangers of infection and carcinoma developing as complications, the surgeon should be consulted and the question of operation considered and in the majority of cases advised.

103 State Street.

Cerebral Syphilis.—Tschisch calls attention to the importance of diagnosing syphilis of the central nervous system when only the vessels are affected. Sclerosis of the vessels is first visible in the anterior branch of the temporal artery as it bifurcates in the temple at the edge of the hair, or 1 or 2 cm. below. Headache and sleeplessness are the earliest and most important of the prodromal symptoms, while vertigo is only rarely observed. All the other familiar symptoms of cerebral syphilis belong to the second period, in which the affection is already past remedy; such as the double vision and modifications in the reflexes.

DISSECTING ABSCESS OF THE ABDOMINAL WALL PRODUCING DEFORMITY SIMULATING POTT'S DISEASE.*

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The case which forms the basis of this report presents features which render it of sufficient interest, it is believed, to warrant its presentation to this Section. The patient was a lad of 16, who was taken sick in January, 1900, with a typical attack of typhoid fever. He remained in bed six weeks, when, on getting up after the subsidence of the fever, there was observed a certain amount of inability to raise the left leg in drawing on the trousers. By the middle of May he developed a general antero-posterior curvature of the spine from the sacrum up with a lateral deviation with the convexity to the right side, and at this time was seen by Dr. Ap M. Vance of Louisville. There was some fever at the time, though no record was kept, and there was a certain fulness in the right loin which caused a suspicion of a possible perinephritic abscess. He was put to bed, and when seen six weeks later was found to have improved very much. He had taken on flesh and the fulness in the loin had disappeared, but there was a decided resistance on the right side between the umbilicus and the anterior superior spinous processes of the ilium. This resistance at this time was believed to be due to the matting together of the intestines as a result of localized peritonitis from the typhoid ulceration. It was also considered as possibly due to an appendicitis. At this juncture, in July of 1900, the boy was sent to the country, and after three weeks believed that he was entirely well, as all symptoms had disappeared; but after unusual exertion incident to a long ride and the breaking down of the vehicle, a high fever occurred (105) and great pain was felt under the left costal border. After a few days an abscess pointed at the navel, broke spontaneously and discharged a large quantity of thin pus filled with flaky white particles. When seen by the writer, in January, 1901, about one year after the beginning of the attack of typhoid fever, the patient presented a sinus at the umbilicus which discharged a thin watery pus. He stated that by irrigating the cavity with which this sinus communicated, several pints of water could be retained and then ejected by making pressure over the left side of the abdomen. There was a marked kyphosis, lumbodorsal in character, with a slight lateral deviation, the convexity looking to the right. The kyphosis at this time was not a general antero-posterior curvature, as when first observed eight months before by Dr. Vance, but was a sharper curvature limited to an area of four or five vertebræ. My first impression of the condition was that it was Pott's disease which had developed abscess with final rupture at the umbilicus; but it was found that the vertebral column was entirely flexible for flexion and lateral movements, and that extension of the column was impossible only on account of the thickened, indurated and unyielding condition of the left half of the abdominal wall. Palpation from the umbilicus to the loin on the left side gave the feel to the hand of a board implanted beneath the superficial tissues. It seemed clear that the deviation of the spinal column was due, as when first observed by Dr. Vance, to an effort on the part of the patient to relieve pressure from the abscess in front, and that this position afterwards became accentuated and habitual from the inability of the lad to return his body to an erect posture after the abscess had discharged, because of the thickened and indurated abdominal wall. Unfortunately for the boy, and for this report, the patient has persistently refused any operative relief up to the present time, and continues with the deformity described and with the sinus discharging a thin watery pus at the umbilicus.

Nevertheless, in the light of the experience of others, it is felt entirely justifiable to make a diagnosis in this case of a dissecting abscess of the abdominal wall following and dependent upon typhoid fever. Such abscesses after typhoid fever are uncommon, but have been described by several writers as hereinafter briefly summarized. This case, however, seems to be unusual in the development of a marked deformity leading to the casual diagnosis of Pott's disease of the spine.

It is well known that as a result of typhoid fever certain degenerative changes take place in many structures of the body and amongst others that the voluntary muscular system suffers a degeneration of both a nuclear and a waxy type, as described by Zenker as early as 1864. One result of such degeneration is an occasional rupture of the rectus abdominis muscle.[1]

Further, abscesses may occur within the muscular structures of the abdominal wall without any demonstrable connection with any lesion of the abdominal cavity, as in a most interesting case reported by F. Raymond in *Le Mercredi Medical*, Paris, 1891.[2] In his case, at about the fourth week of typhoid fever, an induration and swelling developed in the abdominal wall below the umbilicus and to both sides of the median line. The patient died about one week thereafter and on autopsy there was found a large pouch containing about two tumblerfuls of pus without any odor. There was no trace of communication with the abdominal cavity, the walls of the abscess cavity being absolutely intact and at the same time infiltrated, edematous and quite hard. Cultures upon various media demonstrated the bacillus of Eberth as being the only micro-organism present.

Other pyogenic organisms have been found in abscesses occurring during the course of typhoid fever and entirely disconnected with the abdominal cavity. It is recognized that such organisms may find a ready portal of entrance into the circulation at the site of the ulcerations resulting from the typhoidal process.[3]

On the other hand, it is readily conceivable that abscesses of the abdominal wall may result from inflammatory processes which have had their inception within the abdominal cavity and have been communicated to the structures of the abdominal wall itself as the result of inflammatory, ulcerative or perforative lesions of the organs contained within the cavity. While a number of such lesions might be mentioned as being possibly responsible for such pathologic conditions of the abdominal wall, there are only two which will be mentioned here, namely, those occurring as the sequelæ of typhoid fever and appendicitis.

Coplin and Beven[4] report a case of an abscess of the abdominal wall which made its appearance ten weeks after recovery from typhoid fever. A hard, painful swelling appeared over the right lower portion of the abdomen, which gradually extended across the linea alba and upward to the umbilicus, at the lower margin of which a small prominence appeared which was resonant on percussion. This was laid freely open and a large amount of offensive gas escaped. The floor of the

* Read at the Fifty-second Annual Meeting of the American Medical Association, in the Section on Surgery and Anatomy, and approved for publication by the Executive Committee of the Section: Drs. W. J. Mayo, H. O. Walker and A. J. Ochsner.

cavity was covered with a small amount of pus of a fecal odor. A sinus was discovered leading between the abdominal muscles, but was too tortuous to be followed with the probe. Fecal matter appeared on the dressings afterwards, and continued at intervals for three months. The area of the inflammatory deposit decreased but little during the whole of this time. Other complications developed and the patient finally succumbed to uremia consequent upon a nephritis. The postmortem examination showed that the abscess still existing was mural in location and did not communicate at the time of the postmortem with the intestinal wall or the cavity. There were points of localized peritonitis, evidently old, seated over various points in the intestine and forming adhesions. Upon opening the intestine many of them could be demonstrated as the original seats of typhoid ulcers. There were loops of intestine attached firmly to the abdominal wall immediately at the umbilicus, and, although it could not be demonstrated, it is to be presumed that the primary abscess originated from infection occurring through a perforation.

Dr. Ap M. Vance reports[5] the case of a girl of 9 years who, during the seventh week of typhoid fever, developed an abscess of the abdominal wall which discharged a large amount of pus spontaneously at the umbilicus. Five weeks later an incision was made from the umbilicus to both sides of the median line, discharging a large amount of pus of a very fecal odor. The abdominal wall from the ribs to the ilium had entirely separated from the parietal peritoneum, and this surface constituted the floor of the abscess cavity, which extended from the opening at the umbilicus back to the kidney region on both sides. No point of communication with the bowel could be detected. Recovery followed this free drainage.

Dr. Vance has personally communicated to me a second case of a practically identical kind occurring in a little girl. Recovery likewise occurred in this case after free incision and drainage.

Dr. Michie[6] reports a case of abdominal abscess developing during the fourth week of typhoid fever. Pain, swelling and tenderness appeared below and to the left of the umbilicus. The abscess was opened and drained, the patient making a prompt and complete recovery. The diagnosis was made of abdominal abscess having its origin in a suppurating gland of the mesentery.

George Westby[7] describes a patient of 21 years who was believed to have typhoid fever complicated with peritonitis and passing on to an abscess of the abdominal wall, which pointed to the right of and below the umbilicus. This was incised and three months afterwards apparent healing with closure of the sinus had taken place. A month later, however, the cicatrix gave way and there was an escape of fetid pus which was not fecal, however, at any period of the patient's illness. Efforts to bring about closure of the sinus were unavailing, so it was finally laid open by incision. In the course of laying open the sinus something was cut across which exactly resembled a very small intestine. This was recognized to be the appendix veriformis. As a result of the operation satisfactory healing took place.

It would seem certain in this case that the presence of the appendix in the track of the sinus in every probability bore a causative relationship to the persistence of the sinus; and further, that the original abscess, which is described a perityphlitic, was almost certainly of appendicular origin, whatever may have been the relationship of the alleged typhoid fever to the abscess formation.

Dr. W. W. Keen[8] relates a case which gives the reverse side of the picture. A young man of 17 years, two months after an attack of typhoid fever, developed pain in the right groin, followed by the formation of a soft oval tumor just above Poupart's ligament, and just to the right of the internal ring. It was believed to be a hernia resulting from the rupture of the muscles of the belly wall consequent on the hyaline degeneration following typhoid fever. It was, therefore, decided wise to wait until distinct regeneration of the muscle fibers had occurred before undertaking operation. After a week in bed, however, the tumor was found to be increasing in size and operation was undertaken immediately. Incision quickly opened an abscess with evacuation of 1½ pints of pus which was not fetid nor of any fecal odor. A probe passed upward 15 centimeters almost to the level of the umbilicus. It also passed downward towards the true pelvis, but did not reach it. The fingers introduced into the cavity discovered nothing except the ring through which the abscess had come and a very large cavity beyond. The author's impression was that instead of a hernia he had to deal with a typhoid abscess arising in the connective tissues between the iliac internus muscle and the iliac fascia; or it might have arisen from a perforation of the appendix by typhoid ulcer. Cultures from the scrapings of the abscess cavity demonstrated tubercle bacilli, but no other organisms. This suggested the possibility of a psoas abscess resulting from Pott's disease. Up to this time the man had not been aware of any trouble whatever with his back, and had never suffered any pain in this region; but nevertheless a very careful examination showed unquestionably that he had Pott's disease at the dorso-lumbar junction. All the symptoms were now perfectly explicable. It was evident that a man who had had Pott's disease for a period of time long enough to produce a psoas abscess containing 1½ pints of tubercular pus, had passed through an attack of typhoid fever and a relapse without having any infection in the abscess or the bones from the typhoid bacilli and without aggravating the Pott's disease in the slightest degree, and, indeed, without the patient's ever knowing that he had any disease whatever in the spine. In conclusion I submit the following considerations:

1. Abscesses of the abdominal wall without any connection with the abdominal cavity occur most frequently as a result of typhoid fever and readily heal after incision and drainage.

2. The larger dissecting abscessses of the abdominal wall communicate at their inception with some portion of the intestinal tract, occur most frequently as a sequela of typhoid fever or appendicitis, and result from an adhesion between the parietal peritoneum and a viscus, with perforation of the latter. After rupture such abscesses follow the course of fecal fistula, healing sometimes spontaneously or as a result of incision with drainage only after the communication with the intestine has become obliterated. This obliteration sometimes occurs spontaneously, sometimes must be brought about by operative procedure.

3. A dissecting abscess may produce symptoms and deformity simulating Pott's disease; on the other hand, Pott's disease with abscess appearing after an attack of typhoid fever may be confounded with abscess resulting from the typhoidal process.

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DISCUSSION ON PAPERS OF DRS. LEONARD, EISENDRATH AND BULLITT.

DR. F. D. SMYTHE, Memphis—I would like to report an interesting case along the line of work that Dr. Leonard has been doing so successfully. The patient, a gentleman 42 years of age, had suffered for two years with intractable cystitis. Examination of urine revealed the presence of pus, streptococci and gonococci, also an abundance of mucus. He was losing flesh rapidly. Suprapubic cystotomy was performed in order to afford him temporary relief. The opening in the bladder was permitted to heal after three weeks' duration. His general condition at this time was very much improved and he left the hospital. Within a few days he again reported with cystitis as bad as before operation. Whereupon an *x*-ray examination was made revealing the right kidney very much enlarged. A diagnosis of pyelitis and probable stone was made. The Roentgen ray did not reveal the presence of stone. Nephrectomy was performed and examination showed numerous abscesses in the kidney, also small cysts with an extensive involvement of the pelvis. Gonococci were found along with other germs by the pathologist. No stone was found in the kidney upon section. This patient suffered but little inconvenience as result of the removal of his kidney. He voided about the same quantity of water after the operation as he had done before and said that he felt as well as before operation with the exception of a slight pain attending the division of the nerves in the lumbar region. After two weeks he left the hospital suffering considerably from dyspnea. Examination revealed a mitral regurgitation of the heart. This was followed rapidly by swelling of the feet, puffiness under the eyes and marked pallor. I gave an unfavorable prognosis and advised him to return to his home in New Orleans, La. He had been the victim of a gonorrheal infection for six years and the trouble with the kidney, in my opinion, was the result of an ascending gonorrheal infection.

We frequently encounter gallstones associated with malaria and not infrequently cholangitis following typhoid fever. We have cholecystitis and afterward the development of gallstones. Gallstones, as a rule, are not attended with jaundice. Jaundice occupies a position rather too prominent as a symptom of cholelithiasis—when, as a matter of fact, it rarely if ever exists unless the common duct is obstructed. In four cases recently operated on where numerous gallstones were found jaundice was never a symptom. In two cases that were operated on that were remarkably jaundiced no gallstones were found. One case of chronic malarial infection with perihepatitis and adhesion of the liver to the peritoneum had almost complete obliteration of the gall-bladder, which was removed. No trouble was experienced afterward so far as the operation was concerned.

In cases of persistent jaundice we should be on the lookout for malignant disease of the pylorus or head of the pancreas. Operation on the gall-bladder is, as a rule, attended with very little risk and jaundice is not a contraindication to surgical operation. The technique of the operation I would suggest as being most satisfactory where the conditions justify the procedure is a complete closure of the bladder after incision of the fundus, removal of the gallstones and thorough cleansing. In all these cases we find a catarrhal condition of the bladder existing, and after removal of the gallstones, I wash out the bladder with nitrate of silver—weak solution—and if the walls are healthy close the incision in the gall-bladder as we would a wound in the intestine. The morbid fear of leakage of bile referred to by most authorities will not occur if the technique is properly carried out. I close the gall-bladder without any fear by running a silk suture through and through near margin of incision, and over this row of sutures put in another of seroserous and have never seen leakage follow the operation. Where the gall-bladder is extensively diseased, pus being present or obstruction of the common duct exists, cholecystostomy is the operation to be preferred, as closure of the bladder under such circumstances should not be expected to be followed by good results.

DR. G. MACGOWAN, Los Angeles—I wish to ask Dr. Leonard, and I want him to answer for the benefit of all of us, whether the Roentgen rays do accurately give us, at all times, and under all circumstances, in his experience, a fair shadow picture of a stone existing in the kidney or in the ureter. I wish to ask him further, whether, in the hands of an expert, himself even, the diagnosis has not been made of the presence of stone in the kidney and ureter, operation made and no stone found; or whether the diagnosis of the absence of stone has been made, an operation made by the surgeon, and a stone has been found in the ureter or kidney. I wish to call the attention of the Section, further, to a very serious question in the use of the Roentgen ray. It has been my extreme ill luck to have had under my care two, probably, of the most severe Roentgen ray burns that have ever taken place. One lasted, I think, eight months, another for over a year. In both cases healing finally took place only after thorough excision of all the tissues that presented the appearances of having undergone cell-destruction, and, in addition, the removal of a large area of apparently healthy tissue outside of this. These men became invalids. This led me to commission a lady in Chicago, who does that kind of work, to compile the literature of *x*-ray burns. I was appalled at the number of serious cases reported. I would like the Doctor to tell us whether such dangerous burns do not, sometimes, still occur.

Dr. Baldy says that when the report of the microscopist does not agree with your clinical judgment as to the presence of cancer in the neck of the uterus, remove it anyhow; and I say, when the Roentgen picture does not agree with your clinical judgment as to the presence of a stone in the kidney or ureter, cut anyway. But it is not always safe to cut, because the Roentgen picture shows a shadow, unless it is well defined, and occurs in several pictures, always in the same place. In one of my cases, the picture had been made by a man who was very competent. The screen, before, had shown in the kidney the presence of a dark shadow, and the skiagraph made contained one which my colleague pronounced as unquestionably that of a stone. We held the man under observation for two or three months, and treated him for tuberculosis. The shadow cleared up entirely; none appeared in the second picture, nor could any be seen by the screen.

DR. J. D. THOMAS, Pittsburg, Pa.—A patient, passing pus in his urine, was treated for cystitis, and was examined by me with a cystoscope and searcher. I failed to find a stone. In addition to that he had kidney symptoms. I cut down on the kidney and explored it thoroughly and failed to find a calculus. The wound healed kindly, but after a while he still complained of his bladder trouble and now on examining with the searcher I found a small calculus, which was crushed and passed without the pump, because it was not large enough to require the pump. During the operation on the kidney I think the calculus had been disturbed and passed down the ureter, into the bladder. In another case, with the Harris segregator, I found that in the urine from the right kidney there were pus-cells and blood cells, while the left kidney urine was normal. I had the Roentgen ray used, but as the skiagraph was not returned to me as soon as I expected it, I cut down on the kidney and removed a calculus as large as a peanut. The next day I received the skiagraph, but it did not show it. So I had the stone where the skiagraph did not show a stone. We may be mistaken with our diagnosis in all our methods. I am in favor of the skiagraph. It was possibly the fault of the operator. Another interesting case to me occurred about three or four weeks ago. A patient with symptoms of cystitis had been treated for about three or four years, and, in addition to that, he had pain almost continuously in the lumbar region over the right kidney. I used the Harris segregator and found that the urine apparently all came from the left kidney. There appeared to be no urine from the right kidney. For fear I

might be mistaken in my technic I waited for four or five days and repeated it and found the same conditions. I therefore presumed that the right kidney was so much disorganized that it was doing no work. I cut down on the right kidney and to my surprise found it almost normal. Now, that also demonstrates that one can not always depend on the Harris segregator, although I do think it is a good method for diagnosis in addition to our other methods of diagnosing.

With regard to closure of the gall-bladder after opening it, although I do not do a great deal of work in this line, I have closed the gall-bladder and dropped it into the abdominal cavity, and in one case, where I made a postmortem a month afterward, the patient dying from aneurysm, I found that one could hardly tell that this gall-bladder had been opened. It was closed with catgut, and at this point you could hardly tell whether it was opened or not, and that gall-bladder I presented before this Section two or three years ago. At that time the consensus of opinion was that it was not good treatment to drop it into the abdominal cavity. I believe it to be good practice to close the gall-bladder and drop it into the cavity, unless there is some special reason to attach it to the abdominal walls.

Dr. W. J. Means, Columbus—It seems that some investigators have found the coli bacilli in the bile passages. This could scarcely be said, however, of the typhoid bacillus which is known to be a frequent cause of cholangitis, and consequent biliary calculi. It is a well-established fact that normally the fluids of the body are inhibitory to the growth of bacilli. The bile is no exception to this rule. However, any of the fluids may become culture media under pathological conditions. One of the most interesting points discussed is what leads to the formation of stones in the gall-bladder. Primarily there must be infection. This may be brought about in several ways. Trauma, perhaps, plays an important rôle; changes in the normal conditions of the bile through disease and sedentary habits are another cause. Under these abnormal conditions, bacteria find lodgment and multiply. Clumps may form around which the constituents of the bile form. It has been my contention for some years that gallstones always produce some irritation and are a menace to health and life. The very fact that infection is the starting point presupposes an abnormal condition, and as long as the products of this infection remain there will follow more or less disturbance of the functions of the biliary apparatus. Granting that the symptoms are not pronounced, yet sooner or later an impression is made. It is my further observation that greater familiarity with the pathologic conditions of the biliary apparatus helps us to recognize and locate the origin of heretofore obscure phenomena. I have in mind a case operated a few months ago that illustrates my point. A lady, age 42, multipara, had been an invalid for several years, suffering from abdominal disturbances. A gynecologist looked after the generative organs and removed one ovary and tube. No relief followed. When she came under my care there was tenderness over the abdomen, most marked, however, above the umbilicus and in the region of the ascending colon. Neuralgic pains were frequent and severe in the region of the spleen and left kidney. There were no symptoms nor group of symptoms that pointed to the gall-bladder being the seat of the trouble. An operation for the purpose of making a diagnosis was made. The visceral organs were found healthy, except the gall-bladder; a calculus weighing two drams was found and removed. The patient made a good recovery, and has been free from pain and abdominal tenderness up to this time.

I am fully aware that one case does not establish a rule, but it is an illustration of the extensive trouble that can arise from the presence of a foreign body in the gall-bladder. The classical symptoms of tenderness over the gall-bladder, neuralgic pains extending up to the right shoulder, gastric disturbances and jaundice may be absent or masked by more general symptoms over the abdomen. It is my firm conviction that the teaching that calculi may remain in the gall-bladder for years without producing any disturbances is unscientific and fatal to many patients.

Dr. B. B. Davis, Omaha—Some time ago I examined all the cases of gallstone that came into my hands with an effort to determine what constituted the nucleus. I did not carry it out with sufficient correctness, I suppose, to arrive at any very definite conclusion. In several instances I found the clump of bacteria constituting the nucleus. The colon bacillus, I think, was the chief, and, in one case, the typhoid bacillus. The symptoms of gallstones occur so soon after an attack of typhoid fever that Dr. Cushing has come to the conclusion that in many cases typhoid bacilli clumping constitutes the nucleus around which the stones form. I have come to the conclusion that infection is the primary cause. There is no reason why, after the stones form, that this infection should not clear up so that the symptoms of gallstones pass away and that, again, reinfection takes place. I have been impressed by two or three cases comparatively recently, that it is very important that when we make the diagnosis of gallstones an operation should be advised as soon as possible. In one instance I advised such an operation. There was an attack of cholecystitis and the symptoms were quite alarming for a day or two. The woman arranged to go into the hospital and have the operation on the following day. Next morning she felt better and delayed the operation, living two or three months in comparative health, but all of a sudden was taken with sharp pains and went into a collapse. I was not called in until forty-eight hours after that, and then she was moribund. Upon a postmortem examination being made, we found about a dozen stones in the gall-bladder; one of them with rather a sharp corner had perforated the upper part of the cystic duct and bile flooded the abdominal cavity; the bile was infective, there being a peritonitis already established. I think we should operate in every case, with the idea that the contents of the bladder, whether we have acute cholecystitis or not, may infect the peritoneum. We should wall off just as carefully as if we were doing an appendicitis operation in the presence of pus; because we can not tell at the time in what cases there is an infection. Some have spoken of the so-called "ideal cholecystotomy"—the immediate closure of the gall-bladder. If we could tell in any particular case at the time of operation that there was absolutely no infection, no tendency for the clumping together of bacteria, no tendency for the mucus to form into little balls to act as a nucleus, it would be all right, but I had a sad experience in one case. I felt that I had nothing there except the stones; we had a practically normal gall-bladder; I closed it up. A few months after that she had recurrent symptoms and later she had several stones removed by operation. Since then I have made it a practice and expect to continue this practice of draining the cavity and keeping the drainage tube in until all indication of any infection has passed away.

Dr. W. L. Rodman, Philadelphia—In Philadelphia the accuracy of the *x*-rays in locating stones in the kidney, ureter, and in the bladder, is looked on as a very decided step in advance. We feel that occasionally a mistake may be made as was today mentioned, but it is rare, and while I have not had the privilege of having Dr. Leonard do work for me, I have heard several surgeons say that they have never known him to make a mistake. I have for three years had the services of a very excellent man and have not known him to make a single mistake. He has located very accurately stones in the kidney, ureter and bladder. I was present at one operation where there was seemingly a mistake made by the *x*-rays; at least the operator thought so; it was not a very satisfactory test in my judgment as the outline of the kidney substance was not clear to me; yet the case has been quoted as having been one in which there was a mistake made on account of the wrong interpretation given by the *x*-rays. I myself feel that it is a most valuable aid and one which we should not ignore. I should hesitate to cut into a kidney, unless I was very certain that the clinical signs overweighed the negative evidence furnished by the *x*-rays.

As to the question of burns, I think that has been practically eliminated by improved technic. I have not seen a single burn from *x*-rays in the last two or three years, notwithstanding that it is used two or three times a day in the Medico-Chirurgical Hospital by Dr. Kassabian. I have recently investigated this subject carefully, and wanted to subject my own daughter to a test of this kind, on account of the fact that the dentist

recommended it, because a temporary tooth had not been shed and he was not sure whether there was a permanent tooth in the maxilla, and did not care to sacrifice the tooth until he knew whether the permanent tooth was present and wanted to have an *x*-ray diagnostic photograph made for that purpose. Naturally, I hesitated to do this, but asked Dr. Fox, the ophthalmologist, whom I knew had been using this test on the face. He said: "I have never seen even a conjunctivitis following exposure. I have used it hundreds of times. You can go ahead and I assure you from my own experience and as a personal friend that you will take no risks." So I feel that the risk of burns has been practically eliminated.

DR. C. H. LEMON, Milwaukee—I recall two cases of abscess of the abdominal wall that occurred about two years ago. One case I saw in consultation with Dr. W. H. Earles, of Milwaukee, and the other while I was attending a clinic of Dr. Keen, in Philadelphia. I cite these cases because of their infrequency, and I think they ought to be brought to the attention of the profession. They show us another source than Pott's disease of the spine or abscess following perforation of the intestine as a cause of dissecting abscess of the abdominal wall. These two cases are identical. One was a woman about 55, and the other a negro, I should say about 35. Both cases gave a history of recurring appendicitis. In both cases there was entire absence of jaundice; the possibility of suppuration of the gall-bladder with rupture and dissecting abscess of the abdominal wall was not thought of by any of the gentlemen who examined either of the cases. In Dr. Keen's case the negro had stated to him that the swelling that was present in the abdominal wall was recurrent, that he had had the same swelling before, and it had disappeared. The swelling was in the right groin; it looked exactly like an abscess resulting from appendicitis; it pointed; it was quite prominent and Dr. Keen was perfectly satisfied in his own mind that it was an abscess the result of appendicitis. In our own case—Dr. Earle's—we had the very same experience. Now, gentlemen, in both of these cases when the abscess was opened it was found that it lead directly to the gall-bladder, and in both cases gallstones were turned out as large as the thumb. Dr. Keen laughed at his mistake, as we did also at ours, but in the absence of reports of similar cases, who would not make the same mistake? I have never seen cases similar to these cited in our literature. I thought while we were discussing inflammation of the gall-bladder and dissecting abscess of the abdominal wall that these cases would prove interesting and valuable, as suggesting another source for the formation of pus that appeared as an abscess of the abdominal wall.

DR. JOSEPH C. BLOODGOOD, Baltimore—Let me call your attention to the relation between gallstones and acute and chronic pancreatitis; an important fact which has not been brought out in the papers read this morning. I mention this relation because it is only recently that we have understood it. The literature on gallstones and pancreatitis needs more careful clinical observations. I trust that all who in the future observe cases of acute pancreatitis which have the usual misfortune to go on to autopsy, will have made a careful examination of the gall-bladder and ducts, so that our records will be more accurate in regard to the presence of gallstones in cases of acute hemorrhagic and suppurative pancreatitis. It will also be of importance and interest to have further records of those cases which clinically give typical histories of gallstone colic with and without jaundice, and yet when we operate we find no stones in the gall-bladder or its ducts, but we find an inducted pancreas, and a dark, thick inspissated bile; and such cases are always relieved by temporary cholecystostomy.

Opie has demonstrated that bile, when injected through the pancreatic duct into the pancreas, produces at once a very extensive acute hemorrhagic pancreatitis. Some of the animals died within twenty hours after the onset. In a few instances recovery took place. This demonstration seems to explain the cause of the hemorrhagic pancreatitis when associated with a small stone in the diverticulum of Vater. Anatomically we know that into this diverticulum both the common bile and the pancreatic ducts open. A small gallstone, smaller than the diameters of the diverticulum, may plug completely or partially the opening into the duodenum at the papilla, but on account of its smaller size it does not obstruct the orifices of the two ducts; so that the bile completely or partially dammed from the intestinal canal may pass from the common duct into the diverticulum and then through the pancreatic duct into the pancreas and produce acute hemorrhagic pancreatitis. Opie has proved conclusively that bile can produce such lesions, and without the aid of infectious agents. Clinically, he has observed the same possibility in the patient operated on by Professor Halsted. This patient, admitted in a moribund condition, died a few hours after the exploratory laparotomy. Clinically, the symptoms were intense epigastric pain, profound collapse, slight jaundice, and bile in the urine. At the autopsy there were found widespread, disseminated fat necrosis and a huge swollen pancreas with areas of hemorrhage within and without. In the diverticulum of Vater a small gallstone was found which plugged the orifice of the papilla, but did not prevent the bile from entering the diverticulum from the common bile-duct. The large pancreatic duct and some of its branches were bile-stained. This case seems to confirm Opie's experimental work. In the second case—of my own—in the same clinic a similar pathologic condition was found, except that the patient had survived the hemorrhagic stage, and when death took place there was a large peripancreatic abscess. In the literature many cases of acute hemorrhagic pancreatitis have been associated clinically with a previous history of gallstone colic, and at some of the autopsies gallstones had been found. It may be possible for the small stone to lodge in the diverticulum long enough to dam back the bile in the pancreatic duct, produce the hemorrhagic pancreatitis and then slip into the duodenum and be lost, so that at the autopsy the relation between the gallstone and the pancreatic lesion is lost sight of. Opie's experimental work and his one most positive autopsy-finding seem to prove without a question that a gallstone lodged in this position is one of the causes of hemorrhagic pancreatitis. Other causes there may be, but these are yet to be demonstrated. Surgically, this relation should be borne in mind, so that at the operation for hemorrhagic or suppurative pancreatitis the gallstone in this position should be sought for and removed whenever the condition of the patient will allow this procedure. Flexner, in his work on "Experimental Pancreatitis," published in the "Festschrift" to Professor Welch, in 1900, has demonstrated that many substances injected into the pancreas produce pancreatitis, and states that "the element of infection plays an insignificant if not an entirely unessential part." The possibility that bile could be dammed back into the pancreas and produce hemorrhagic pancreatitis was not demonstrated or considered. Nor had Opie considered this possibility in his article of "Fat Necrosis" in the same publication.

The relation of gallstones to chronic pancreatitis is of more practical surgical interest, because the condition is cured by proper operative interference. Both Robson and Opie have demonstrated both clinically and experimentally that a stone lodged in the common duct just above the diverticulum of Vater, or completely plugging the diverticulum, produces obstruction not only to the biliary, but to the pancreatic secretions, which in the pancreas leads to chronic interstitial pancreatitis. This lesion in the pancreas gives it a hard nodular form, often mistaken for carcinoma. Clinically, it is associated with great loss of strength and weight. The disease is rapidly cured by the removal of the stone. Every surgeon is familiar with the rapidity with which the emaciated jaundiced subjects improve after the removal of the stone. In some cases the stone is not found at the operation. It has probably passed into the intestine. Robson has demonstrated that such patients are relieved by cholecystostomy and drainages. This relieves tension, allows the absorption of the exudate, and the pancreatic duct becomes patent again. The chronic interstitial pancreatitis disappears; the general health and condition of the patient improves. This explains instances in the experience of every abdominal surgeon. Such patients have a history of recurrent gall-bladder attacks with more or less jaundice, and more or less loss of flesh and strength. At the operation no stone is found to explain the symptoms. If the pancreas is palpated it is found to be hard and nodular, almost like in carcinoma,

the bile dark and inspissated. If cholecystostomy and drainage for a few weeks is performed, the condition is entirely relieved. Robson reports cases which he thought at the operation might be carcinoma, relieved by this procedure. These observations would seem to indicate that we would better perform temporary cholecystostomy in all cases coincident with the removal of stones from the common duct.

Dr. Miles F. Porter, Fort Wayne, Ind.—I think a better conception of the essential nature of so-called gallstone colic and the essential factor at the bottom of jaundice will help us out of the trouble. Gallstone colic is not the result, it is not produced in all probability by the passage, of a stone. You will not have gallstone colic until you have your ducts or gall-bladder infected, and plugging of the common duct so as to entirely prevent the passage either of bile or pancreatic juice is one of the rarest things in connection with gallstones. The point I wish to make is this, that the pain of so-called gallstone colic has behind it infection and inflammation; that jaundice has the same thing in the vast majority of cases, and I think that the experience of most of us who have done work in this line will bear these statements out. All of us have seen cases—individuals—who have carried gallstones for a long time without symptoms until symptoms of infection arose.

Dr. C. W. Phillips, Rocky Ford, Colo.—Strictly speaking, there is no such thing as *x*-ray burn. This peculiar kind of burn or dermatitis is the chemical effect of electricity and is not due to *x*-ray penetration. We infer from what Monell says in his "Manual of Static Electricity," that the coil is more capable of producing this dermatitis than is the static machine. Now I would ask the question whether it has been the experience of anyone present who has been using the static machine to have had in his practice *x*-ray burns? In my limited acquaintance with the static machine I have not met with this misfortune, nor do I feel any fear of it. I will venture to offer the suggestion, that with the subject sufficient distance from the Crooke's tube, and with proper insulation, the so-called *x*-ray burns will occur quite infrequent, if they occur at all.

Dr. T. J. Maxwell, Keokuk, Iowa—I had occasion to operate on a lady who was taken violently ill after riding a distance in the cars. I saw her some four days after the attack. She had a tumor just above the umbilicus. I asked her how long she had had that. She said that she never had a tumor, that there was never anything the matter with her; that she always had a good appetite, regular bowels, and nothing the matter with her for years. I said: "Here is a tumor." She said she was taken suddenly ill after riding a distance in the cars and that she vomited, had pain and she felt something tear in her stomach. I operated and found that the stomach was attached to a large gall-bladder, larger than my fist, which had made a half revolution, carrying the stomach and duodenum with it, preventing all egress from the stomach and pylorus and I found in the gall-bladder 193 stones, one of them plugging up the cystic duct. I extracted them and curetted the gall-bladder, sewed it up and attached it to the peritoneum, so that it would not make another half turn, and she is now quite well.

Dr. A. C. Bernays, St. Louis—In my entire experience, now over twenty-five years, I have met with but three cases of acute cholecystitis, in which there were such symptoms as Dr. Eisendrath related. I mean by that, temperatures reaching 106 and in one case 107 F. In those cases it soon became apparent that there was a peritonitis and in all those cases I was called in by a general practitioner who recognized the extent of a peritonitis, which he did not refer, with any degree of certainty, to the gall-bladder, but that it was a hepatitis or a pancreatitis, or, in one case, the physician thought it was an appendicitis which had worked up behind the colon up toward the liver. I operated on all of these cases and succeeded in saving two. In the one case I found the gall-bladder gangrenous, looking like a gangrenous appendix, surrounded by adhesions, and I was enabled to remove the whole thing by scooping it out with my finger, leaving an enormous putrid cavity, which I treated by the open method—free drainage. The entire bladder, with the cystic duct, was gangrenous, but had been shut off by a wall of newly-formed tissue. In regard to the point made by Dr. Porter, I do not think that our attention is called to the existence of gallstones only when there is infection. It would be impossible for me to admit that, because I have operated on a great many cases of stone in the gall-bladder and stone in the common bile duct, where there was absolutely no inflammatory condition present and still the patient had jaundice and fever—the stone was in the common duct. It is true that the fever is not easily accounted for in these cases and I myself was surprised not to find some kind of infection along the bile tracts. On the other hand it is quite true that a patient may carry a gall-bladder more or less full of gallstones for years and that they will give no trouble until the patient has typhoid fever or until the patient has an ordinary pharyngitis—an angina or some other mild form of infectious disease—and then there will suddenly be pain and empyema of the gall-bladder, but I think the Doctor goes too far when he says that our attention will be called to these conditions only, or nearly always, first, by an infection. There is no doubt that the mere mechanical passages of gallstones will give rise to great pain and even to rise of temperature, and I think that the point brought out by Dr. Bloodgood is a very valuable one.

Dr. Leonard, in reply—I wish simply to emphasize the fact that there are calculi in the kidneys and ureters that will pass without operation. The detection of calculi is not always easy. The smaller calculi sometimes require a repetition of the examination. I have published my failures and also my successes in other papers. I have had one case of error through defective technic—it has been published. I missed the stone in the upper pole of the left kidney; I misread the plate. Mistakes are possible in the *x*-ray in reading the findings, as well as in other methods. In reference to the point raised in regard to one shadow hiding another: Recently a physician sent me a case for examination for calculus. The patient had lately passed a stone. He had the stone with him and asked me to put it on the plate, under his lumbar region and see if I could show it. He brought it to me in a little paper pill-box. I placed the stone in the box under the loin and both the box and stone showed distinctly in the negative through the lumbar shadow.

As to the word "opacity." Its meaning is different now since the discovery of the *x*-ray. The question is not whether one shadow is denser than another; it is whether the sum of shadows in one area is greater than the sum of the shadows in another. That is the reason why we can show the shadow of the kidney in the lumbar region. The negative diagnosis I have found to be as accurate as the positive.

We are dealing with an element in the *x*-ray about which we do not know any more to-day than when it was discovered. It is the *x*, the unknown still, and so long as we do not know what it is, it is difficult to tell the nature of all its actions. I myself do not believe that the *x*-ray itself is the agent which causes the burn. I believe that it is rather the effect of the electricity upon tissue. I myself have burns upon my hands and I seldom put them in the path of the *x*-ray. I get them from the induction effect of the current. In reference to the static machine, I have met a number of men lately who have used the static machine and they told me that they have had burns. While here in St. Paul, one of the exhibitors in the exhibition connected with the meeting told me that he had furnished one of the gentlemen who was exhibiting a static machine with a pair of rubber gloves when operating, because he could not keep the burns from his arms. I think that it is true that the static machine produces the burn as well as the coil. As Dr. Rodman says, it is in the proper use that we are to look for protection in using the *x*-ray. I have found that the introduction of a grounded screen of aluminum attached by some metallic connection with the ground has been a great protection. I have had a number of burns. I had two serious burns, but those occurred before I knew it was possible to produce them. It is as yet impossible to absolutely

protect from burns, no matter how careful and expert the operator may be. The danger is, however, very slight. At the present time I am using a 4-inch coil for my work—a coil which I have had constructed on special lines. I find it sufficient. The spark has volume and sufficient length to overcome the resistance of the tube. It is the volume in the secondary discharge that is essential to good *x*-ray work.

The point I would like to emphasize particularly in reference to my paper is that I have here a method which determines accurately the position and presence of calculi and the size of those calculi, making it possible for us to leave to Nature in selected cases what she often accomplishes. The fact that there are more ureteral calculi than we had supposed shows Nature's tolerance of them. The same is as true here as in the papers brought out on the biliary calculi. There we find calculi quiescent until some infection lights up and aggravates the condition present and shows the presence of the calculi.

DR. D. N. EISENDRATH, in reply—I agree with Dr. Porter, and in answer to Dr. Means, in regard to the fact that infection is, in the great majority of cases, the first symptom, or is the cause of the first symptoms of the presence of gallstones; a patient may have gallstones, as shown by Kehr and a number of investigators; they may go through an entire lifetime without having become aware of their presence, but when infection begins and the patient has a cholecystitis or cholangitis that causes, as Riedel has shown, an inflammation around the foreign bodies; there is contraction of the gall-bladder muscles and common-duct walls and, as a consequence, the patient has gallstone colic, but the stones are seldom expelled. As to the question icterus, we can distinguish between the two varieties of jaundice. There is the inflammatory jaundice which is of slight degree and which is almost invariably present during the course of gallstone colic and is known as the inflammatory icterus, in which there is a small amount of absorption of bile by the gall-bladder walls; and so-called obstructive icterus, in which the obstruction is caused by a stone, usually in the common duct.

I desire to relate some interesting experiments made by the Japanese investigator Miyake. He found that when he injected virulent colon bacilli in the gall-bladder of animals he produced no change, except a slight catarrhal change in the gall-bladder. If partial obstruction of the common or cystic duct is produced, particularly the latter, by passing across it a portion of the omentum to obstruct it, or ligating it incompletely in other words, and then, at the same time, one injects micro-organisms into the bladder, we have the two conditions now recognized to be essential in the gall-bladder infection plus obstruction to produce stones. These are the clinical causes. In two dogs, after the lapse of nine months, and twelve months, in another case, he produced gallstones which, upon analysis, had the typical composition of such calculi; that is, the experiments have proved what we have known since 1891, when Nauyn first proposed the stone-forming theory, that stones are not due to acid precipitation of bile, but that the colon and typhoidal bacillus and the resultant catarrh is the most frequent cause.

In regard to primary suture in gallstones, I think it is the general opinon of men who have had experience—from 400 to 600 cases each—as Mayo, Robson, Kehr and Riedal, that we ought to abandon it as a routine procedure. It is dangerous to close the gall-bladder in every case. It is better to do one of two things: either obliterate the gall-bladder entirely by cholecystectomy, or follow the procedure of the majority of surgeons and drain the gall-bladder, in that way getting rid of the infection. Peterson has shown in cholecystitis purulenta, that the examination of the bile escaping from the fistula shows at the end of ten days that the bile is sterile, so that by such perfect drainage we can obtain good results. In answer to Dr. Bernays, I would say that in our case there was positively no peritonitis. The condition of the liver and the slight obstruction caused by the stone which was lying in the diverticulum of the cystic duct, the lack of escape of fluid, and chiefly the condition of the liver, was the cause of death.

DR. J. B. BULLITT, in reply—I am familiar with some cases of empyema of the gall-bladder, which, through rupture, have produced abscesses of the abdominal wall. I purposely omitted this class of cases in my paper, for the discussion of all cases would lead us too far. I believe that the experience of the last few years has demonstrated that stone in the kidneys and ureters is of much more common occurrence than had before been believed. I believe further that the chapter of kidney surgery has expanded most wonderfully in this time and is destined to expand more rapidly and to be reckoned in the next decade in the brilliancy of its results with the surgery of the gall-ducts and appendicitis. I find that there has not been so much work done which will reflect so much credit on this particular chapter of surgery, and which will be of such benefit, as the light which has been thrown on this matter through the means of the *x*-rays, and of all those workers who have added their knowledge to this chapter in surgery, no one is entitled to as much credit as Dr. Leonard. I have, for several years, worked in the kindergarten of the *x*-ray and I think the difficulties to be encountered by one who undertakes examinations by these means are very great. Of all the operators in this country there have been comparatively few up to the present time who have developed a technic which is sufficient for making a positive and negative diagnosis. I believe the time is fast coming when the accumulating experience of men will prove that we shall have this safely at our command.

Dr. Bevan has laid stress on the fact that as far as the determination of kidney stone is concerned, the *x*-ray is more important than the operative exploration of the kidney. He has reported one, perhaps two, cases in which kidney stone had been expected, in which an exploratory operation had been made. The kidney had been incised and the pelvis explored. The kidney had been needled in all directions and no stone had been found. The symptoms persisting, the patient was afterward submitted to the *x*-ray and a very clear and distinct shadow of a stone was found. I have had a similar experience, although not with a kidney in situ, but one that had been removed on account of extensive destruction, from a large kidney stone in the pelvis of the kidney. Desiring to experiment with the shadows, I placed the kidney on a photographic plate and made an exposure and was very much surprised to find on developing that the shadow of a second stone was present on the plate. I exhibited this stone before the Surgical Society in Louisville and opened the kidney over the point indicated by the shadow and found there a second stone which had not been found at the time of the removal of the kidney. If this method of Dr. Leonard were followed, mistakes could not occur. If a patient is operated on after a stone has been determined in this way, it will not be possible to remove one stone and leave another in place.

Concerning the term "*x*-ray burn," we all know what we are talking about. All of the various types of apparatus are capable of producing burns. I have used the static machine, the Tesla coil and the induction coil. I have never produced a burn in anyone but myself and that was produced by means of the static machine.

Clinical Report.

ANKYLOSTOMIASIS—REPORT OF A CASE.

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This being one of the few cases of ankylostomiasis to be reported in this country, I present it to the profession.

The patient, J. O R., aged 38, an Englishman, was employed as a sailor on a vessel plying between Liverpool and cities in the United States. On his last trip the vessel touched a port in Mexico (Vera Cruz) a few days before entering any ports of the United States. Whether or not the man visited other ports or was subjected to circumstances conducive to the contraction of this disease could not be ascertained. He arrived in Baltimore about the last of September, feeling extremely weak and debilitated and suffering from some obstinate

intestinal trouble. In consequence of this general condition he abandoned his return trip to Liverpool, entered a sailors' boarding house, and after remaining there for three or four days was admitted (Oct. 2, 1901) to Bayview Hospital. The history gained elicited the fact that he had been suffering from general malaise and debility for about six months prior to his arrival in this city. He had commenced to lose appetite and energy the latter part of the spring, and this condition gradually developed into a general disability.

About a month ago his symptoms became more grave, a troublesome bowel disorder ensued, the discharges at times being tinged with blood. However, he was not compelled to abandon work until he reached this city in September. At the time of his admission to the hospital his condition was at once considered grave on account of the emaciation and anemia. A dry cough was noticed. His temperature on admission was 100 F. and varied between this point and 98 throughout the course of the disease. The evening temperature was about a degree higher than that of the morning, thus simulating a tuberculous condition.

The physical examination elicited the following: The face was emaciated and pale; the eyes were bright, pupils somewhat dilated, reacting normally to stimuli; conjunctivæ pale; tongue was coated white and the breath was offensive. Clavicles and ribs were prominent; skin free from eruptions, and very pale. Palpation and percussion elicited nothing abnormal. On auscultation a few sonorous, sibilant and mucous râles were heard distributed pretty generally over the chest. Respirations were 24 per minute. Dyspnea was quite marked at times. Heart sounds were weak, and pulse 100 per minute. No increased dulness was evident on percussion. A hemic murmur was occasionally heard over the apical region. There was no increased hepatic or splenic dulness. Pain points were evident over various portions of the abdomen on palpation. No lumps were found in the abdomen. The reflexes were normal. The whole body showed marked anemia and emaciation. There were no signs of edema. The urine was pale in color; specific gravity 1016, contained no albumin or sugar. The sputum was frothy, but contained no evidence of tubercle bacilli.

These symptoms suggested either amebic dysentery or tubercular enteritis. A microscopic examination of the feces was made, but nothing was found to confirm our suspected diagnosis. There was found, however, in addition to blood, certain strange-looking ovoid granular bodies, much larger than red blood corpuscles, the true character and source of which was not recognized, and in fact very little importance was attached to their presence.

The postmortem examination revealed, as will be noted below, that these bodies were the eggs of the parasite ankylostomum duodenale, the true cause of the disease. An examination of the blood was made two days after the patient's admission to the hospital, with the following results: red corpuscles, 2,500,000 per cubic millimeter; white corpuscles, 24,000; stained specimens showed a great increase in the polynuclear leucocytes and eosinophiles, the relation of the eosinophiles being 26 per cent. A small percentage of nucleated reds were found present, of the microblastic and normoblastic types. Poikilocytosis was absent. The general size of the red corpuscles was about normal; however, a few microcytes and macrocytes were present, the former predominating. A few days later the second examination showed a slight increased leucocytosis.

The pains in the abdomen were of a dull, nagging character, with an occasional paroxysm of great severity. About two days prior to death a final blood examination was made, with the following results: red corpuscles, 800,000 per cubic millimeter; white corpuscles, 29,600; hemoglobin, 11 per cent. Stained specimens at this time showed an increase in the nucleated reds. A slight poikilocytosis was now present, with some increase of microcytes. The most striking change was the increase of the polynuclear leucocytes and a decrease in the eosinophiles, the eosinophiles now only aggregating 3 per cent. A few lymphocytes and large mononuclear leucocytes were to be seen.

From this time on the patient rapidly failed. Respiration became more labored and gradually decreased in frequency, and he died on the evening of Oct. 19, 1901. An autopsy was made the next day by Dr. Yates, of the Johns Hopkins University. A brief summary of the findings being as follows:

Body was marble white in color, slight rigor mortis present 18 hours after death. Peritoneal cavity contained an excess of clear fluid, but the surfaces were smooth and glistening. The pleural cavities contained some turbid-looking fluid; no apparent congestion; some old adhesions to posterior chest wall. Lungs were edematous on the dependent portion; much black pigmentation of the tissue and old tubercular foci were present. The bronchi contained much frothy fluid, with no evident congestion of the mucous membrane.

The pericardial cavity contained a small amount of clear fluid. The blood clot in the heart was pale and tenacious; cut section of the muscle gave evidences of fatty degeneration. The valves were apparently normal. There were also evidences of fatty degeneration in the liver and kidneys. Extreme paleness of all viscera was present.

On opening the intestines about five or six inches from the beginning of the duodenum, a hemorrhagic-looking substance was found, small in amount. On close inspection of this substance there was revealed numerous small whitish worm-like bodies averaging from 7 to 16 mm. in length. As we opened the tract downwards the same condition existed until about 6 feet from the origin of the jejunum a more striking condition was encountered. These little worm-like bodies were now found to exist in great numbers. They were noticed to be in a living condition and many attached to the mucous membrane. They were thought to be the ankylostomum duodenale parasite which, after microscopic examination, proved to be correct. These parasites were abundant down to the colon and a few extended as far as the rectum.

The stomach contained no parasites. The entire intestinal canal was bathed in a tenacious mucus. The mucous membrane was pale, with here and there slight hemorrhagic areas. Along the free margin of the valvulæ conniventes greater hyperemia was noticed.

The microscopic examination of the bowel contents revealed large numbers of the previously mentioned ovoidal bodies. They were now recognized to be the eggs of the parasite, and the supposed granular condition was known to be various stages of segmentation. Had we been fortunate enough to have recognized the eggs found in the antemortem microscopic fecal examination a correct diagnosis would have been reached and proper treatment employed, resulting possibly in saving the man's life. This illustrates the necessity of making a thorough microscopic fecal examination in all intestinal disorders, when associated with marked anemia.

Quantity or Quality?—It is plain that the medical college which adopts as its motto, *quality rather than quantity*, must have either a large amount of virtue or a small amount of endowment, or some of both. The lower the standard of admission and the quality of teaching, the poorer it is, either in virtue or endowment. There is at present a rage for large classes in our literary colleges that is an ominous sign of education debasement. The college president who succeeds in swelling the numbers in the classes is held to be the most "successful." That Williams College thinks otherwise and prefers by elevation of her standards to lessen the mere number of her matriculants is a hopeful sign. A number of our medical colleges are like-minded, and in view of the fact of an already overcrowded profession, with a future lessened function, it is the clear duty of every physician to encourage those schools whose standards are in advance of others. Every established physician is asked by young men whether he should study medicine or not, and at which college he should matriculate. So long as the poor commercial college is advised so long will our present educational disgrace persist, and so long does the fault lie at our doors. We have the cure of our special evil in our own hands. We must starve the low-standard commercial medical college to death or to decency.—*American Medicine.*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

61 Market Street : : Chicago, Ill.

Cable Address: "Medic, Chicago"

Subscription price: Five dollars per annum in advance

SATURDAY, NOVEMBER 30, 1901.

GUARNIERI'S VACCINE BODIES.

In 1892 Guarnieri announced that by inoculating vaccine lymph into the cornea of rabbits certain cell inclusions—"cytoryctes"—form, which he and others after him are inclined to regard as the causative agent of vaccinia. These experiments have been repeated by others and the results obtained have been interpreted variously, some regarding the bodies as parasites, others as the product of cellular degeneration. An exceedingly thorough and elaborate study was made by Hückel,[1] who reached the conclusion that the intracellular bodies in question were the products of a specific degeneration of the cytoplasm induced by the vaccine virus and by the vaccine virus only.

In the meantime the whole subject has been worked over again in what seems to be a most painstaking and critical manner by Wasielewsky[2] in C. Fraenkel's Institute in Halle, and from this article, which is the summary of work extending over eight years, the following conclusions seem to merit general notice: The so-called vaccine bodies appear regularly in the epithelial cells of the rabbit's cornea when active lymph is introduced into a small canal or pocket in the cornea. These bodies correspond to the bodies found in the skin in variola and vaccinia, bodies that do not occur in the healthy skin or in skin the seat of other lesions than those mentioned. From a careful review of the work of others, as well as from their own results, both Hückel and Wasielewsky are firmly convinced that these bodies can not be made to appear in the corneal cells by any other procedure. The vaccine bodies are not leucocytes or the products of leucocytes, and they do not spring from the nuclei of the epithelial cells of the cornea. There are many considerations that speak against their development as the result of specific toxic action on the protoplasm of the cells—Hückel's theory. Such specific toxic action affecting single parts of cells does not seem to be known outside of this possible case, and such rapid vacuolation and granular disintegration as are seen in the vaccine bodies do not occur in degenerative products. The vaccine bodies occur in dividing cells—an observation somewhat difficult to reconcile with the view that they are of toxic, degenerative character. The filtrate of vaccine lymph is inactive and it does not produce vaccine bodies in the cornea. On the other hand, the number, size, structure and distribution of vaccine bodies correspond well with Guarnieri's view that they are cellular parasites.

Wasielewsky shows that active vaccine may be obtained after successive inoculations from cornea to cornea through no less than 46 generations, a circumstance that points strongly to the proliferation of the vaccine virus at the points of inoculations. Careful microscopic and bacteriologic examination failed to show ordinary micro-organisms in the corneal inoculations, whereas the vaccine bodies occurred constantly from first generation to last. Hence Wasielewsky regards Guarnieri's view that the vaccine bodies themselves are the active agents of vaccine as very probably correct. Inasmuch as the causative agent of vaccinia is held back by filters there is no good reason to regard it as so remarkably minute that it can not be seen with the optical means at our command. On the whole Wasielewsky makes out a strong chain of presumptive evidence in favor of the etiologic rôle of the vaccine bodies. The fact that active vaccine, as shown by experiments both on calves and on children, was secured after 46 inoculations from cornea to cornea at intervals of a few days, vaccine bodies appearing in plentiful numbers in every cornea, certainly indicates the closest possible relationship between vaccine virus and vaccine bodies. At the same time Wasielewsky does not insist that his interpretation is definitive and unchangeable. Granting the parasitic character of vaccine bodies, too little is as yet known about them to warrant discussion as to their exact nature, whether protozoic or vegetable. Their possible relations to Funck's sporidium vaccinale[3] must be left in abeyance for the same reason.

1. Ziegler's Beiträge, Supplementheft ii, 1898.
2. Zeitschr. f. Hyg. u. Infectionskr., 1901, xxxviii, 212-318.

ANKYLOSTOMIASIS.

The report in this issue by Dr. Hall of a case of ankylostomiasis in a sailor, dying from this disease in Baltimore, shows the importance of careful examination of the feces in obscure cases of anemia associated with intestinal disturbances. Ankylostomiasis, or uncinariosis, is a comparatively unknown disease in the United States. In some of the new possessions, however, it is probably quite as frequent as in other countries, such as Egypt. According to Lieutenant B. K. Ashford[1] ankylostomiasis is the most general and most harmful disease—a veritable curse—in Porto Rico. Allyn and Beard[2], reporting a case in an Italian in Philadelphia, review some of the cases observed in this country, and they express the belief that it is more frequent than the few scattered reports seem to indicate[3]. The diagnosis is established by finding the ankylostoma eggs in the feces. The eggs are described by Manson[4] as beautifully clear and transparent, 55 to 65 by 32 to 43 mikrons in

3. See JOURNAL A. M. A., Aug. 31, 1901, p. 582.
1. New York Medical Journal, 1900, April 14.
2. American Medicine, 1901, ii, 63-66.
3. See also Stiles, Texas Med. News, 1901, July.; Thomas A. Clayton, Phil. Med. Journ., 1901, June 29; and THE JOURNAL A. M. A., 1901, Nov. 9, p. 1259.
4. Tropical Diseases, Revised, 1900, pp. 578 and 581-594.

size, oval, with delicate transparent shells, through which two or four light gray yolk segments can be seen distinctly. The ova are to be sought for soon after the feces are passed.

As indicated by the variety of names bestowed upon the disease (brickmaker's anemia, miner's cachexia, tunnel anemia) it occurs especially among laborers that come in close contact with dirt and soil. The disease is of extraordinary frequency in Egypt (Egyptian chlorosis), Ceylon, India and elsewhere, especially in tropical and subtropical countries. A very fatal epidemic among the laborers in the St. Gothard tunnel in 1880 called the direct attention of European observers to the disease and to the significance of the minute, blood-sucking parasite that causes it. Ankylostomum duodenale, or uncinaria duodenalis discovered by Dubini in 1838, inhabits the jejunum and adjacent parts of the intestine; it attaches itself to the mucous membrane and imbibes blood freely, producing a severe anemia by removing blood, the plasma alone being utilized by the worm; it is probable that it also produces a toxic effect. Dyspeptic symptoms and intestinal disturbances are also caused. The female worms produce a prodigious number of eggs, which hatch outside the body if kept warm in feces mixed with soil. Manson states that Grassi and Parona have estimated that 150 to 180 eggs per cubic centigram of feces indicate an infection of about 1000 worms, male and female; this gives an idea of the intensity of the infection.

The authors are not in accord as to the mode of infection. Many assume that the parasite enters the intestine "by chance," either in muddy drinking water or by way of mud and dirt adhering to the hands, food or eating utensils, while Looss[5] advances the theory that the larvæ enter through the skin. Placing a drop of suspension of larvæ upon the skin of an extremity an hour before amputation, Looss saw that the larvæ penetrated into the hair follicles. Looss claims that he became infected in this way. As larval suspensions dry on the skin an area of redness and burning results. Looss' theory makes infection of those who work in soil very easy. The reasons that would determine the localization of the mature worms in the jejunum seem very obscure, but not any more so than those that determine the wanderings of trichinella spiralis into the skeletal muscles. The prophylaxis of ankylostomiasis rests upon the prevention of mixing of fresh infected feces with earth. In the curative treatment the principal agents, according to Manson, are thymol and male fern. Thymol is now used more commonly than male fern, the quantity being three or four 10 to 30 grain doses on an empty stomach at intervals of an hour, preceded by a thorough emptying of the bowels, and followed by rest in bed and avoidance of alcoholics. "An equally efficient but safer drug is a desideratum."

5. See Editorial note, JOURNAL, 1901, July 13.

THE MEDICAL POLITICIAN AND THE MEDICAL STATESMAN.

In general public affairs the distinction between the politician—in the *fin-de-siècle* rather opprobrious meaning of the word—and the statesman, is not a difficult one to apprehend. Popular usage has determined the signification of "politician" to be "one who interests himself in public affairs for personal gain," while "statesman" still means "one who devotes his time and energies to the public weal," asking no reward but that satisfaction which comes from a sense of duty well done. In medical polity, which is coming to be an important department of medicine, the term "medical politician" has been for many years freely used in the opprobrious sense. That it has in large part been thus justly employed it is fruitless to deny. The facts are well known to all. The term "medical statesman" has up to this time not been found necessary. The need for it, however, is at hand, for a race of medical statesmen is already among us. They have been few, but are steadily increasing in number and influence. In the various states to-day pure-hearted physicians are cheerfully sacrificing time and means in the altruistic task of properly organizing the medical profession and of leading it towards its highest ideals of public and professional usefulness. These men ask no reward except the satisfaction of having accomplished good work. They are content with the respect of their fellows. Viewed from the standpoint of economics they are constructive statesmen, and the more honorable descriptive term should not be withheld. They are not "politicians" in the up-to-date American sense of the term. They should be honored, as well as very properly now are the pioneers in scientific medical research, in order that others whose tastes run in this direction may be encouraged to follow the same paths. Medicine in America to-day stands in need of just such a body of physicians.

No doubt, as was the rule in the past, designing ones, in hope of personal enrichment in money or reputation, will attempt to pose as leaders in this branch of medical polity, but physicians can in a short time readily discriminate between him who works for the general good and him who seeks only self-advancement. The marks are not difficult to read, especially in the eyes of an educated profession. Everywhere physicians must see to it that the true statesmen of the profession are put to the front in those places in which they are so greatly needed. For instance, the secretaries of the state medical societies and the delegates to the House of Delegates of the American Medical Association should be carefully chosen from this class. The presidents of the state medical societies and many other officers in all descriptions of medical societies may appropriately be men who have attained eminence in practice or in scientific research, but the secretaries and delegates should be honest men of medical affairs.

Let us seek for and encourage the real statesmen among us. Let us put them where their talents will be

of the greatest service to medicine, and then let us support them heartily and loyally. In return for the loss of practice necessarily sustained by those who honestly execute the duties of such offices as demand continuous effort and time-consuming attention, the members of medical societies—who should be all eligible physicians—should freely put their hands in their pockets. Valuable time and fruitful endeavor must be compensated at least to the extent of insuring the livelihood of those who conscientiously give their time for the general good. Other callings with vastly less high ideals have long followed this policy with great benefit to themselves. Why should the physician refuse to do the same? Let us encourage a race of fairly-paid medical statesmen, and then medicine will shortly occupy a place in public esteem and sociologic influence that is otherwise absolutely unattainable. In South and Central America and on the continent of Europe, physicians frequently play the highest parts in public affairs, greatly to the benefit of the nation and to the standing of the profession of medicine. The same thing can be done in the United States if physicians are willing to follow the suggestions herein outlined. We must find a proper place for the term "Medical Statesman."

PROGRESS IN GLANDULAR SURGERY.

Recent advances in abdominal surgery have made certain supposedly hopeless medical conditions amenable to surgical treatment with very satisfactory results. Morrison's operation for the establishment of a collateral circulation to relieve the congested portal circulation, and so prevent the annoying ascites which is so marked a feature of hepatic cirrhosis, has in many cases afforded so much benefit to the patient as to constitute practically a symptomatic cure for some years. Jonnesco's suggestion of the removal of the enlarged spleen in cases of malarial cachexia has proved of great value in preventing the hitherto inevitable progress of the disease from bad to worse. Without serious risk in cases that are not too advanced patients are given a new lease of life. The indications and contra-indications for both these important operations are now in course of definition at the hands of surgeons in many countries and the prognosis and eventual limitation of applicability of the procedures to individual cases will soon be established.

When with serious degenerative conditions in these large abdominal glands, the liver and spleen became the favorable objects of surgical intervention, it was almost to be expected that kidney disease would also prove amenable to enterprising yet conservative surgery. There are two recent reports in this matter that are most encouraging. While in this country last year Mr. Reginald Harrison, the distinguished English genito-urinary specialist, mentioned in his lectures his favorable experience with operative interference in certain severe cases of acute nephritis. The anuria that sometimes develops during acute kidney disease, Mr. Harrison believes to be due to congestion of the organ. The pressure within the kidney capsule becomes so great that secretory activity is eventually inhibited. This condition which Mr. Harrison epitomizes as glaucoma of the kidney, can be relieved by slitting the renal capsule. The urinary secretion is at once re-established and unless the pressure within the kidney has been allowed to continue for so long that parenchymatous degeneration has set in, recovery from the hitherto usually fatal anuria is complete.

Another phase of surgical intervention in kidney disease, this time chronic, came up at the recent meeting of the New York State Medical Association. Professor Edebohls, of New York City, in discussing the subject of floating kidney, said that in his experience three cases of chronic nephritis had been relieved after the formation of adhesions for the anchorage of a prolapsing kidney. The relief afforded in one case three years after operation, amounts to a symptomatic cure. Not only has the albumin disappeared from the urine but the tendency to edema has been overcome and the general health has distinctly improved. After several years with almost constant loss of weight the patient has now put on flesh. The other cases are as satisfactory in their results, though not under observation for so long a time. Dr. Edebohls now proposes, in cases of chronic nephritis, to attempt their surgical relief by operation for the production of extensive kidney adhesions.

Dr. Edebohls' theory of the cause of the benefit that accrued to these patients is that the increased blood supply obtained by the kidney from the adhesions prevents further degeneration and encourages the formation of new portions of kidney substance. It seems to have been demonstrated experimentally by German observers that new islets of renal parenchyma may be formed even comparatively late in life. As we begin the new century we are probably in the presence of an unexpected but beneficent invasion of surgery into what has been hitherto deemed the exclusive domain of medicine. Further surgical intervention for the relief of glandular disease may be confidently looked for. The field is large and surgical success will be welcomed by the medical man for whom these cases have, as a rule, been obstinate to treatment and despairingly hopeless.

TRADES-UNIONISM IN MEDICINE.

Recently our news columns have contained reports of the forming of medico-business organizations in various parts of the country, their objects being to protect their members against dead-beatism—to coin a word. Some of them have adopted a rule of fining any member who professionally attends those who are blacklisted. It seems that it might be possible to devise a better method than this for self-protection. It has the unpleasant flavor of some of the tyrannous methods of trades-unionism, which as members of an honorable and learned profession we will do well not to adopt. All our humanitarian

traditions are against such a course and upon the proper maintenance of these depends much of our self-respect as well as the respect in which we are held by the public. No medical practitioner can profitably sacrifice his time and services for ingrates and dead-beats, and this alone ought to be sufficient to prevent any systematic breaking of any agreement by members of the organization. bu a fine for doing what might possibly be a necessary act of common humanity is not in accord with medical or any other ethics. These organizations would do well to repeal the regulation, which is more likely than not, if left unrescinded, to damage their future usefulness and possibly imperil their existence.

DESTROY CHINATOWN.

The Annual Report of the San Francisco Board of Health contains the following paragraph:[1] "Chinatown, as it is at present, can not be rendered sanitary except by total obliteration. It should be depopulated, its buildings leveled by fire and its tunnels and cellars laid bare. Its occupants should be colonized on some distant portion of the peninsula, where every building should be constructed under strict municipal regulation, and where every violation of the sanitary laws could be at once detected. The day has passed when a progressive city like San Francisco should feel compelled to tolerate in its midst a foreign community, perpetuated in filth, for the curiosity of tourists, the cupidity of lawyers and the adoration of artists." The Board of Health of San Francisco has made an honorable record in its fight against the plague and the unprincipled commercial interests backed by the state government. That it has had to make this fight is due to the existence of Chinatown which perpetuates a state of heathen barbarism in the central business section of an American city. It is a wonder that it has been tolerated so long; as it exists it is a pestilent nuisance endangering the health not only of the city but of the State of California and the whole United States. Its abolition ought not to be expensive; its proprietors obtain their present income by maintaining it as a nuisance, and with it redeemed and put to decent business uses they ought to be well repaid for any loss by an enhanced value of their real estate. So long as they permit it to be continued in its present condition it would be only decent justice to mulct them by heavy fines for keeping up a disease-breeding nuisance.

THE SPREAD OF EPIDEMIC CEREBROSPINAL MENINGITIS.

At the nineteenth Congress for Internal Medicine in Berlin, in April this year, Jäger called the attention to certain interesting conditions in regard to the spread of epidemic cerebrospinal meningitis. This disease has not figured to any extent in the ordinary statistical tables except when more marked epidemics appeared. Since it has become more or less common and in some places even a fixed custom to endeavor to establish an etiologic diagnosis of sporadic meningitis by means of the bacteriologic examination of the exudate obtained by lumbar puncture, it has been found that probably the majority of the cases of sporadic meningitis are caused by the meningococcus, that is, belong to the epidemic form. An exact statistical study is not possible as yet, but from the figures at hand Jäger points out the remarkable fact that epidemic cerebrospinal meningitis appears to be "exorbitantly widespread" in certain American localities, especially in New York, Boston and other cities. He speaks of the United States as the seat of endemic foci of the disease, whence it is carried to European seaports, which in turn become new centers of dissemination. He would explain the recent epidemics in Copenhagen on this score. Considerable numbers of cases have also occurred in Hamburg and Kiel. The evidence on which Jäger makes this deduction does not seem to be free from other equally reasonable interpretations. Granting that the germs may be transported across the Atlantic, it would seem rather singular if other seaports in Europe did not also become infected, if Jäger's surmises were true. He makes no reference to English ports, for instance. Certainly a more comprehensive investigation is needed before any such deductions as he draws may be warranted. As the matter now stands it would seem to be just as reasonable, if not more so, to trace the invasion of New York and Boston by meningitis to the importation of the infection from European ports.

1. Quoted in the San Francisco Bulletin of November 15.

POLITICS AND HEALTH OFFICERS.

It has been a pleasure during recent years to observe the excellent work that is being done in the way of preventive medicine by the health departments of several of our large cities, under the management of efficient and qualified health officers. The work done is worthy of the commendation and encouragement of all. That it demands special knowledge that can not be learned in a day is recognized by everyone who is competent to form an opinion, and is evident even to the laity when they take notice of the differences that exist between a competent and an incompetent administration. It seems to be a needed step further that politicians should come to recognize this fact. Just why political partisanship should be a qualification for such office would be a hard matter for them to explain, but they act too often entirely upon this presumption. Ordinary business common sense would condemn the spoils method here, but there is a moral argument that is still stronger against it. Shall the public health be endangered by inexperience, by the lack of interest and zeal that such a system entails? If officials were held duly responsible for the consequences of their acts, there would be a fearful score against those who by unfit appointments and political changes endanger the public health. These thoughts are suggested by the fact that there is in the city of Buffalo at the present time an active interest on the part of the medical profession in a proposed change in the health office there. Dr. Ernest Wende, who has held the position of health commissioner for ten years, has made an admirable record, but is likely to be removed on political grounds. The physicians, however, are strongly and righteously exercised about it and are doing what they can to have Wende retained. There

is no criticism of him personally, nor of his work; the only reason apparent is that he does not belong to the political party coming into power. Its leaders and the mayor-elect, who has the appointing power, will do well for themselves and their party if they disregard the unwholesome precedents of the party spoils system and keep a competent and efficient official instead of putting what may with absolute truth be called the vital interests of the city into untried hands. The time has pretty nearly arrived when politicians who sacrifice these for the sake of personal or party reasons will be considered public enemies and violators of a sacred public trust. There is no better opportunity than this for the mayor of Buffalo to demonstrate his fitness for his position and due sense of his official responsibility.

THE CANADIAN MEDICAL PROFESSION.

A Canadian journal[1] takes up the proposition to establish a branch of the British Medical Association in Toronto and does not look upon it altogether with a favorable eye. It complains of the small part Canadian physicians take in the medical progress of the world and sees but little stimulus to effort in the small and ill-supported provincial medical societies. It doubts, however, whether making themselves an appendage to the larger bodies of the mother country will be a remedy. It says that Canadians lack confidence in themselves; they are always looking to England, over-rating English medical qualifications as compared with their own, which really represent as high or even higher attainments, and generally accepting the subordinate position that seems to be considered proper. They are, our contemporary suggests, too content to "bask in the reflected light of British medical achievements" and not independent and enterprising enough to make a name for themselves. We would have hesitated to offer these criticisms ourselves for fear of hurting their feelings, and in repeating them here we do not wish to unqualifiedly endorse them. There are Canadians doing good work in McGill and elsewhere and we hope there will be still more. Some of the leading Canadian physicians have taken an active part in special associations on this side of the line, where they seem to find adequate stimulus and professional sympathy. There is much truth, nevertheless, in the statements made by our Canadian exchange that so long as the Canadian profession is willing to keep up a merely colonial spirit and play second fiddle to Great Britain in professional matters it will suffer not only in its proper self-appreciation but also in the appreciation of others. Its best scientific spirit and work can not be evolved so long as such a condition exists. Britain is too distant and too insular in many ways to have the best influence on the medical profession of half a continent, even admitting that two-thirds of that half is not inhabited. The American profession is closer in medical thought to the Canadian physician than is that of Great Britain, and it will be a pity if our brethren over the line persist in ignoring this fact. We may say there are no boundaries in science, but there is a certain affinity and influence in contiguity and like environment even in scientific matters, all the more when there are no racial or linguistic barriers. The suggestion that Canadian medical men intermingle more with their American professional confrères and look less humbly up to English medicine is one that perhaps they will do well to consider. It is in no way disparaging to British medicine—which we in this country duly respect and appreciate—to say that it can not in the nature of things influence so advantageously the profession of Canada as can that of the United States. Whether the Canadians realize this or not is less a matter of importance to us than to them. The best of their leading men do realize it and give evidence of it in the professional associations.

1. Dominion Medical Monthly, October.

Medical News

CALIFORNIA.

French Hospital.—The contracts for building the new French Hospital, Los Angeles, have been awarded. The building will cost about $10,000.

Emergency Hospital.—Ground was broken, November 4, for the new Emergency Hospital, Los Angeles, which is to be erected at a cost of $50,000.

Personal.—Dr. A. W. Hitt, formerly of Chicago, has located in Geyserville.——Dr. Theodore F. Johnson, National City, has been appointed coroner of San Diego County, vice Dr. Horace P. Woodward, Escondido, deceased.——Dr. James W. Clark, Santa Rosa, sustained a fracture of the scapula and other injuries by being thrown from his buggy, November 17.

St. Elmo's Hospital Closed.—By order of Dr. Frederick W. Hatch, State Superintendent of Hospitals, the license of the St. Elmo Hospital and Sanatorium, San Francisco, has been suspended, on the ground that too much division of authority between the medical and business heads has existed and does exist, and on the further ground that proper and adequate care and treatment of insane persons is not possible under the present conditions.

GEORGIA.

Cornerstone Laid.—On November 1, with appropriate ceremonies, the cornerstone of the new building of the State Sanatorium, at Milledgeville, was laid.

Dr. A. C. Colson, Peyton, has located in Screven.——Dr. William D. Hoyt has decided to remain in Rome and has resumed practice.——Dr. Fred G. Barfield has opened an office in Savannah.

IDAHO.

New Doctors.—Out of eleven recent applicants for license to practice medicine, seven passed and were granted certificates.

Proposed Lewiston Hospital.—A favorable report has been made on the proposed establishment of a hospital at Lewiston, to be conducted by Catholic sisters, and it is expected that active work will soon be commenced on the building.

Unlicensed Practitioner Jailed.—M. A. Blatchly, who has been practicing in the vicinity of Idaho Falls, has been tried at Blackfoot for practicing medicine without a license, and sentenced to pay a find of $300 and to be confined in the county jail for six months.

ILLINOIS.

Personal.—Dr. James F. Dick, Mount Pleasant, has moved to Wolf Lake.——Dr. Robert W. Markley, Nunda, has located in Blackstone.——Dr. Henry O. Smith, Sycamore, has opened an office in De Kalb.

New Hospital.—J. Brynteson and P. H. Anderson, Rockford, have each donated $25,000, to be used in the erection of a hospital for the Mission Church, subject to the beginning of building operations before March 20 next.

Communicable Diseases.—Diphtheria is causing alarm at Evanston. Sixty cases have been reported in the last two months.——Typhoid fever is epidemic in Kankakee, where 75 cases are reported, and in the country around Ottawa.——Scarlet fever has appeared in Atlanta.——Smallpox is reported from Roseville, Roodhouse, Lukensville, and from two towns in Logan County.

Chicago.

Mercy Hospital Report.—During the last year $104,395.15 was received; and the hospital now has an indebtedness of $134,609.53. An amphitheater, buildings for nurses, and a laundry were erected during the year.

Personal.—Dr. Guy G. Dowdall, has located in Clinton, Ill. ——Dr. Edmund R. Moras, who was seriously injured in a street-car accident in 1896, which resulted in the amputation of his arm below the elbow, has been awarded $36,000 damages.

Decrease in Typhoid Mortality.—There is a marked decrease of typhoid mortality noted for the week, but the character of the water supply gives no assurance of a continuance of the present remarkable freedom from the impure water diseases.

Dunning Institutions' Investigation.—Drs. Frank Billings and Hugh T. Patrick are the medical members of the committee appointed by the president of the County Board to investigate the county institutions at Dunning. The committee has already commenced its work.

The general health of the city, as indicated by the mortality rate of 12.97 per 1000 per annum, remains good, although there is a continuous increase of the pneumonia germs found in the laboratory examinations. Influenza continues to spread, but is, fortunately, of a mild type, only two deaths from this cause being reported last week.

INDIANA.

Small Compensation.—Dr. James N. McCoy, Vincennes, who treated smallpox cases for the city for twenty days, sued the city for $650 and received judgment for $239.40, has compromised the matter for $100.

Dr. Adolf Wermuth, Fort Wayne, assistant professor of pathology at the Fort Wayne College of Medicine, has been forced to resign on account of failing health, and Dr. James B. McEvoy has taken up his work.

Smallpox is raging in Spencer County; Lincoln City and Gentryville are quarantined; Newtonville has 15 cases, and cases are also reported from Rockport and Little Pigeon.—— Three new cases have been discovered at Lafayette.

IOWA.

Smallpox has re-appeared in Council Bluffs, where two cases have been reported. The epidemic last winter has resulted in claims against the county of nearly $7000.

Physician Wins Suit.—Dr. William D. Middleton, Davenport, who sued for $170 fees for assisting at an operation, was awarded $150 by the jury. The defense was that the operation was not a success.

Personal.—Dr. Franklin W. Sells, Murray, has been appointed examining surgeon of the Keokuk & Western Railway, and will spend a portion of his time in Osceola.——Dr. Bruce H. Stover, Marengo, has located in Spencer.——Dr. Daniel W. Jackson, Villisca, has sold his practice to Dr. W. W. West, Hepburn.——Dr. J. Jackson Crider, Ottumwa, has located in Burlington.

To Regulate Osteopathy.—The State Board of Medical Examiners has nominated a legislative committee consisting of Attorney-General Mullan, Dr. Alexander M. Linn, Des Moines, Dr. John C. Shrader, Iowa City, Dr. Fred W. Powers, Reinbeck, to formulate a stringent bill to regulate osteopathy or shut it off entirely. Dr. John C. Shrader submitted a report on the examination of the Still College, holding the course was not up to the standard prescribed by the Board.

MAINE.

Board of Medical Registration.—The Board has passed on the papers of the eleven applicants examined at Portland, November 14, and has admitted eight to registration.

School Inspection.—Portland has inaugurated a system of daily school inspection. The physicians appointed for this purpose are Drs. Ralph F. Goodhue, Willis H. Kimball, Henry P. Merrill, Jr., Albion H. Little, William Cammett and Ralph W. Bucknam.

Personal.—Dr. Nathaniel H. Crosby, Monson, has changed his field of practice to Milo.——Dr. John F. Benjamin, Kenduskeag, has moved to Bangor.——Dr. Eugene M. McCarty, Woodfords, has located in Knightsville.——Dr. Percy E. Butler, late of Milltown, N. B., has located in Rolling Dam. ——Dr. A. A. Brown, Southwest Harbor, has moved to Monson.

MASSACHUSETTS.

Diphtheria is epidemic in Lowell; about 90 cases have been reported and an order has been passed appropriating $30,000 for a contagious-disease hospital.

Smallpox is epidemic in Roxbury and South Boston. There are now 250 patients in the isolation hospital and from 2 to 17 new cases are reported every day.——The disease has appeared in Taunton.

Gift to Newton Hospital.—The trustees of the Morse Hospital, Newton, have received from Holis H. Hunnewell a gift of $15,000 in Chicago, Burlington & Quincy Railroad Company 4 per cent bonds, without restrictions as to how the money shall be used.

MICHIGAN.

Free Vaccination.—The Board of Health of Marshall has instructed the health officer to vaccinate free of charge all individuals who were unable to pay.

Unlicensed Practitioner Flees.—An irregular practicing at Center Line, fled on hearing that a warrant had been issued for his arrest on the charge of practicing medicine without complying with the law.

Smallpox.—There are now 23 cases in the county hospital at Houghton.——Seven cases are reported from Elsie.——In several suburbs of Calumet public schools have been closed on account of the disease.

Personal.—Dr. Chauncey L. Barber, Lansing, has located in Calumet.——Dr. Lyston H. D. Pierce, Plainwell, expects to locate in South Africa, and leaves for the seat of war, December 11.

Comparative Morbidity.—For the month of October, compared with the preceding month, pneumonia, pleuritis, whooping cough and diphtheria were more prevalent; and diarrhea, intermittent fever, dysentery, cholera morbus, cholera infantum and inflammation of bowels were less prevalent. For the month of October, compared with the average for October in the 10 years, 1891-1900, scarlet fever, smallpox and measles were more than usually prevalent; and intermittent fever, dysentery, cholera morbus, remittent fever, diphtheria, erysipelas and cerebrospinal meningitis were less than usually prevalent.

Communicable Diseases.—Cerebrospinal meningitis was reported during October, at 4 places; measles at 30 places; whooping cough at 31 places; smallpox at 54 places; diphtheria at 85 places; scarlet fever at 186 places; consumption at 194 places; and typhoid fever at 233 places. Reports from all sources show cerebrospinal meningitis reported at 2 places less; measles at 5 places more; whooping cough at 11 places more; smallpox at 11 places more; diphtheria at 25 places more; scarlet fever at 59 places more; consumption at 1 place more; and typhoid fever at 22 places more, in the month of October, 1901, than in the preceding month.

MINNESOTA.

Grateful Patient.—By the will of John J. Lawless, of St. Paul, $10,000 is bequeathed to his physician, Dr. Charles E. Smith.

Personal.—Dr. Axcel C. Baker, Oronoco, has been appointed to the house staff of Wesley Hospital, Chicago.——Dr. David F. Rae, Pelican Rapids, has moved to Fergus Falls.——Dr. George H. Lowthian has moved from Dennison to Glenville.

Smallpox.—There have been 216 new cases discovered in sixty localities in thirty-four counties. The report of two weeks ago showed only 144 cases. Three hundred is a conservative estimate of the total number of cases at present in quarantine in the state. There are 7 new cases in Chanhassan township, Carver County, and 6 in the village of Barnesville, Clay County. In McCrea township, Marshall County, there are 10 new cases and Norman County has a total of 18 cases. Otter Tail County has a total of 17 new cases, 11 of which are in the village of Pelican Rapids. Polk County has a total of 14 cases, 10 of which have been discovered in Crookston. The village of Starbuck, Pope County, has a total of 18 cases and the village of Red Lake Falls has 39 cases, making a total for Red Lake County of 51 cases of the disease. There are 12 cases in Duluth.

MISSOURI.

Dr. George H. Rushby, who located in Millersburg last spring, has moved to Columbia.

The Coroner's verdict in the tetanus cases charging the St. Louis Health Department with negligence in the care and dis-

tribution of the city antitoxin was not unexpected. The report of the experts, Drs. Fisch, Waldron and Bolton was prepared with great care. There is no question as to the competency of the physician in charge, but the evidence shows that untrained helpers did much of the responsible work in drawing, preparing and labeling the serum, and proper tests were not made before distribution. Meanwhile the public press is urging the fixing of the responsibility and the end is not yet.

Tuberculosis Ordinance.—As predicted, the City Council of St. Louis refused to pass the "tuberculosis bill" as presented by the Health Commissioner. It was urged by the committee of the Medical Society that the proposed general registration of all tuberculous cases and disinfection of rooms would be inoperative and an injustice. A modification agreed upon by the medical members of the Board of Health and the Society's committee will shortly be presented. It substitutes care and thorough cleanliness for the so-called disinfection, and requires that the physician shall notify the Board of Health of each advanced case, where in the opinion of the physician cleansing of the apartment and enforced sanitation is indicated. In other words the physician is made responsible and can call on the Board of Health when needed.

St. Louis.

St. Louis Water Supply.—The question of the pure water supply grows in interest. It will be one of the topics in the Washington University lecture course this winter. There is reason to believe that St. Louis will have a pure water service second to none in the country. Two plans are proposed: one to build a large filtration plant and use the Mississippi River water, and the other, to convey the water from several great springs in the Ozark Mountains. Engineers are making reports on both propositions.

The hospital facilities of St. Louis are being largely increased. The new City Hospital, on the site of the old one, is progressing somewhat slowly, but steadily. The Jewish Hospital in the western part of the city is building, and near it will be the new St. Luke's. St. Anthony's on Grand Avenue, although new, is well patronized, and is one of the best and finest hospitals anywhere. Mount St. Rose, the new hospital for consumptives, is nearing completion and is almost a duplicate of St. Anthony's in size and construction. The Barnes Hospital, with its $1,000,000 endowment, has, for some doubtless wise reason, been held back by the trustees.

NEBRASKA.

Personal.—Dr. George R. Gilbert, dispensary physician at Union Pacific headquarters, Omaha, has been transferred to Cumberland, Wyo., where he is to be surgeon for the coal department of the road.——Dr. Seymour H. Smith, emergency surgeon for Omaha and the bridge district, has assumed the duties formerly performed by Dr. Gilbert.

Complaint Filed.—Health Officer Rohde, of Lincoln, has filed a complaint charging Dr. Charles A. Shoemaker, a homeopathic physician, with violating city law, in the following language: that "while being a physician within the said city did wilfully neglect for more than twelve hours after obtaining knowledge of the same to report a case of contagious disease, to wit: Smallpox, said case having the symptoms of smallpox."

Smallpox.—St. Dervin, Nemaha County, has 26 cases of the disease.——On account of the general re-appearance of smallpox the State Board of Health has issued a circular from which the following extracts are made: "Present indications threaten, for the coming winter in Nebraska, a more widespread and serious epidemic than has been known in the state for many years. It can readily be controlled by proper quarantine and isolation. That it may be possible to locate every case promptly the State Board of Health demands of every practitioner of medicine in the state of Nebraska that he report by letter every case of smallpox coming under his notice within twenty-four hours of his knowledge of said case, such report to be addressed to George H. Brash, M.D., Beatrice, secretary of the board. It is further resolved by the board that failure to make such report shall be sufficient cause for the revocation of the certificate to practice medicine in Nebraska, of the party failing to make such report."

NEW JERSEY.

Smallpox.—Two new cases have been discovered in Newark.

Louis Leroy, B.S., M.D., of Newark, has been appointed State Bacteriologist of Tennessee, and has moved to Nashville.

City Hospital, Newark.—The new City Hospital, Newark, was formally opened, November 12, and turned over to the Board of Health by the Common Council. The hospital consists of a main building with wings and a home for nurses and attendants. It will accommodate several hundred patients and is fitted up in accordance with the most modern requirements.

Tetanus in Camden.—Following the epidemic in St. Louis, nine deaths from tetanus in Camden have caused a panic among the parents of that city. Although vaccination was promptly forbidden, most careful investigation has thus far failed to disclose any connection between the vaccine virus employed and the tetanus which apparently followed the vaccination. Furthermore, no case of tetanus occurred after vaccination within the known incubation period of the disease.

NEW YORK.

Consumption Hospital Site.—The latest rumor from Albany regarding this much-discussed question is that the board of managers of the proposed state hospital for those threatened with consumption had made a positive decision in favor of the Ray Brook site, and it was highly probable the Board of Review would approve of this action. The Ray Brook site is midway between Saranac Village and Lake Placid, in the Adirondacks.

Proposed Union of New York Society and Association.—In his inaugural address as President of the Medical Society of the County of New York, last Monday evening, Dr. Frank Van Fleet said that one of his avowed objects was to promote a friendlier feeling between the members of that Society and the forces now working in antagonism to them, to the end that the spirit of usefulness of the two bodies might be increased and that there might be a thoroughly united profession. With this object in view, he urged the Society to extend the olive branch and exhaust every honorable means to bring about a reconciliation between the Association and the Society. After the address the following motion, made by Dr. D. B. St. John Roosa, was unanimously adopted: Resolved, That the president of the Medical Society of the County of New York appoint a committee of five, of which he shall be chairman, provided a similar committee be named by the New York County Medical Association; that these two committees shall confer with reference to the union of the two organizations and that this committee be requested to report to the Society at the stated meeting in January, 1902, or sooner, in order that this Society may, if desirable, make a recommendation to the Medical Society of the State of New York at its next annual meeting.

New York City.

Dr. Smith Ely Jelliffe has been appointed Visiting Neurologist to the City Hospital.

The new German hospital, Brooklyn, received about $2000 as the result of a benefit concert given at the Academy of Music, November 18.

Lectures on Orthopedic Surgery.—The trustees of the New York Orthopedic Dispensary and Hospital announce that the surgeon-in-chief, Dr. Russell A. Hibbs, will give a course of clinical lectures on orthopedic surgery at the institution, on Monday and Thursday, 5 p. m., from Dec. 2, 1901, to Jan. 2, 1902 (both inclusive). The course will be free to the medical profession and students.

Woman's Hospital Anniversary.—The Woman's Hospital in the State of New York celebrated its 46th anniversary at the Berkeley School, November 21. Addresses were made by Dr. William M. Polk, dean of Cornell University Medical School, and by the Rev. Charles Cuthbert Hall, of Union Theological Seminary. The hospital expenses for the year were $67,966, and the subscriptions $358,368, about $250,000 short of the sum needed for an administration building and a new pavilion, which the governors have under consideration. In all, 836 indoor and 3830 outdoor patients received care.

Buffalo.

Mortality.—The report of the Department of Health for October shows a mortality rate of 14.68 per 1000 per annum. Consumption was responsible for 42 deaths, typhoid fever for 11, and diphtheria for 13.

Dr. Lewellys F. Barker, professor of anatomy in the University of Chicago, addressed the Section on Pathology of the Buffalo Academy of Medicine, November 19, on "The Unveiling of the Cell." He emphasized that physiological chemistry is the science which underlies all branches of medicine.

Smallpox.—Twelve new cases of smallpox have appeared in a densely-populated Polish district of the city. As the cases were diagnosed as chicken-pox and there was no quarantine the

health authorities consider the condition grave, but are doing everything possible to avert an epidemic. One of the patients, a child who had not been vaccinated, died.

PENNSYLVANIA.

Dedication of Hospital Annex.—The Percival Roberts memorial annex to St. Timothy's Hospital, Philadelphia, was dedicated with appropriate ceremonies, November 16.

To Build Hospital.—Meyer Guggenheim, New York, has announced his intention to give $60,000 to the Jewish Hospital Association of Philadelphia, to be used for the erection of a hospital for private patients, which shall be known as the Meyer Guggenheim Private Hospital.

Personal.—Dr. Stephen E. Tracy, who recently completed a two years' term of service as resident in the Kensington Hospital for Women, Philadelphia, will locate in San Francisco. ——Dr. Francis B. Davison, Fleetville, has moved to West Pittston.——Dr. John Beattie, Philadelphia, has opened an office in Lebanon.——Dr. Joseph D. Thomas, Pittsburg, is seriously ill.

Smallpox.—Residents of Sharon Hill refuse to be vaccinated and protest against compulsory vaccination, braving a penalty of $25 thereby.——Chester has three new cases of smallpox.——Shamokin and Coal Township have ten new cases and one death.——Because of the prevalence of smallpox in various parts of the city, it has been decided by the Philadelphia Hospital authorities that general visiting to that institution shall be prohibited until the danger of the epidemic has passed.

CANADA.

Anthrax is quite prevalent near Brockville, Ontario.

Child Insurance and Infanticide.—The Quebec Provincial Board of Health has passed strong resolutions requesting the Government of the Dominion to prohibit child insurance, which they claim leads to excessive infant mortality in that province.

Lockjaw from Vaccine.—The public press reports two cases of lockjaw following the use of vaccine. One case comes from Halifax, N. S., and the other from Three Rivers, Que. The Provincial Board of Health of Quebec does not recommend any other vaccine than the glycerinated vaccine.

The National Sanitarium Association objects to Toronto submitting any by-law to the people in January as proposed for $50,000 for the purposes of a consumption sanitarium, claiming that they had bought a site for the above purpose and were going on with the work.

Montreal General Hospital.—The regular quarterly meeting of the Board was held last week. The report of the medical superintendent, Dr. von Eberts, stated that during the quarter 720 patients had been treated to a conclusion in the public wards of the hospital. Of this number 64 died, 32 of which deaths occurred within three days of admission, making the mortality percentage for ordinary hospital cases 4.65.

Royal Victoria Hospital, Montreal.—When Lord Strathcona and Lord Mountstephen built the Royal Victoria Hospital, they also endowed it and transferred 9000 shares of Great Northern stock as a nucleus of the endowment fund, which then paid a dividend of $20,000. Since that time the road has become such a money-maker that the dividends have been doubled, and the income of the hospital is now in the neighborhood of $40,000 a year from this source alone.

Inspection of Immigrants.—Dr. James Barclay, Montreal, has been appointed medical advisor of the new Immigration Board appointed in that city by the United States government. This Board will meet daily, and all immigrants destined for the United States will undergo inspection by them, and in addition undergo a medical examination by Dr. Barclay. The jurisdiction of this Board will extend from the City of Quebec to Niagara Falls. Trachomatous subjects will be debarred and returned to their native country.

Personal.—Dr. C. B. Keenan, Ottawa, has been appointed surgical pathologist to the Royal Victoria Hospital, Montreal, and is to have charge of the surgical work in the outdoor department. Dr. Keenan was formerly senior house surgeon at the Royal Victoria.——When landing at Digby the other day from St. John, Dr. Montizambert, the director-general of public health, being unknown to the quarantine officers, was obliged to submit evidence of recent vaccination. After exhibiting several scars which were satisfactory to the officers, the Doctor made himself known.

Smallpox is still on the increase at Ottawa. The order calling for compulsory vaccination has been rescinded by the City Council.——Smallpox is prevalent at St. Hyacinthe, Que., and the regular city physician being unable to care for all the patients, has had a physician appointed for each ward to assist him. Another order has been issued by the Quebec Board of Health insisting on compulsory vaccination.——The Canadian Pacific Railway Company, the Richelieu and Ontario Navigation Company and the Grand Trunk Railway Company have issued orders for a general vaccination of all their employes in the City of Montreal. ——There are eleven cases of smallpox in the Civic Hospital, Montreal.

Resignation of Dean Craik of McGill.—Robert Craik, LL.D., M.D., C.M., dean of the Medical Faculty of McGill, after a service of many years, has intimated his desire to retire from office. He will be asked to become a governor of the institution, this distinction being a rare one in the history of this famous university. Dr. Craik has been associated with McGill during the whole of his professional life, and has witnessed the development of the Medical Faculty from a mere school of thirty members to an important department of the University, with a total enrolment of over 500 students, in medicine alone. He matriculated in 1850 and was graduated M.D., C.M., in 1854, with the highest honors in his class. In 1889, on the death of Dr. R. Palmer Howard, he was appointed to the deanship. He holds the chair of hygiene and public health. Dr. Girdwood, professor of chemistry, is senior professor in order for the position, although the name of Dr. T. G. Roddick, M.P., has been mentioned in connection with the position.

LONDON LETTER.

The London School of Tropical Medicine.

At the opening of the third session of the London School of Tropical Medicine, Lord Brassey delivered an opening address in which he showed the great and rapidly-increasing importance of this new institution and the necessity for more funds. The Colonial Office has contributed $17,500, and the India Office $5000. The school was originally intended for the instruction of surgeons in the colonial and Indian services, but private students, missionaries and physicians have been admitted. The demand for instruction in tropical medicine is much greater than was anticipated. During the last session it has been necessary to refuse several students. About $500,000 is required to place the school in a satisfactory position. Dr. Patrick Manson said that the students were no callow youths, but men of experience, many of them with gray hairs. Enlarged laboratories, a lecture room and a museum were wanted. He appealed for funds on the strength of the work done by the students. One of them, Dr. George Low, discovered in the West Indies that over 11 per cent. of the inhabitants of Barbadoes were infected with filariæ and that by simple inexpensive measures the disease could be eradicated in a generation. Dr. H. E. Durham is going on behalf of the school to study diseases in the South Pacific. He accompanied Dr. W. Myers to Brazil to study yellow fever. Both contracted the disease, and Dr. Myers succumbed to it. The English government, in spite of its vast tropical possessions, is very niggardly beside the German government in encouraging research. The latter has sent medical expeditions to Brioni (Istria), Lussinpicolo (Istria), German South West Africa, New Guinea, German East Africa and the Marshall Islands, and further expeditions are being planned. On behalf of the London School of Tropical Medicine Sir Francis Lovell, late surgeon-general of Trinidad, is about to undertake an expedition to the tropics to collect funds. He will apply to the British residents in the East and other tropical countries. He will go to India, Ceylon, Straits Settlements, China, Japan, New Zealand and Australia, and will probably return by the United States and Canada.

Typhoid Fever, the Destroyer of Armies, and Its Abolition.

At the United Service Institution, Dr. H. E. Leigh Canney delivered a lecture on this subject. Sir William Broadbent presided, and the lecture was well attended. Examples were quoted of the disastrous effect of typhoid fever on armies, for example, the recent Paardeberg outbreak. The following method of prevention was advocated as absolutely reliable and less likely to error and requiring less skill than filtration or chemical processes. The apparatus consists of a cylindrical copper boiler with a large heating surface below arranged in wedge-shaped pockets and a capacity of 50 pints, an iron stand, and a petroleum lamp, which burns with rapid and complete combustion under air pressure. The whole weighs 38½ lbs.

and measures 33 inches in height and 17 inches in diameter. The apparatus is constructed so as to allow of ready repair if shot through. Cloths are to be used to strain mud from the water. Fifty pints of water can be raised from 54 F. to the boiling point in 11 minutes, three-quarters of a pint of petroleum being consumed. One mule carrying 200 lbs., could transport the following supplies for the unit of 100 men. Two machines in cases with lamps and stands, 42 pints of petroleum (sufficient to supply 4 pints of boiled water daily for each of 100 men for 7 days), sugar, tea, meat extract, vegetable powder, saddle, 2 collapsible buckets and ropes. No water should be drunk not supplied by the "water section." The men working the water section should be specially trained. The advantages of the scheme are: 1, total immunity from water-borne disease which causes four-fifths of the mortality of invading armies; 2, absence of discomfort and inefficiency on the march from minor illness; 3, accessible tea, meat-extract, soup, etc., several times a day on the line of march; 4, enormous reduction of transport. In the discussion which followed the chairman, Major Firth, professor of military hygiene at Netley, Major General Lord Dundonald, Dr. Washbourne, Dr. Conan Doyle and others took part. The lecturer's scheme was highly commended.

Smallpox in London.

The outbreak of smallpox still continues. An average of 12.6 cases are admitted daily to hospital. There are 311 cases under treatment.

Plague.

No fresh cases have been reported in Glasgow or Liverpool since the last report to THE JOURNAL. The plague returns from India for the week ending October 12 and 19 show the number of deaths to have been 8551 and 8372. During the corresponding weeks of 1900 the mortality was only a third of this. In Egypt during the week ending October 27 there were only 2 fresh cases, and November 2, 2 cases. At the Cape only one fresh case is reported for the week ending November 2. In the Island of Mauritius, 85 fresh cases and 50 deaths occurred in the week ending November 7.

PARIS LETTER.

Two Cases of Sudden Death from Medullar Cocainization.

Professor Legueu, surgeon of the hospitals, has reported recently at the Society of Surgery two cases of death from medullar cocainization, which took place in his service at the Hotel Dieu. According to Dr. Legueu, no fault could be found with the manner in which the injection was made, nor with the solution used, which was analyzed. The only attenuating circumstance was the condition of the patients. The first one, who was operated for the rupture of the triceps tendon, had had an attack of apoplexy. He was stout and suffering from emphysema; moreover, the heart sounds were indistinct, and and there was atheroma of the arteries. Dr. Legueu felt that chloroform was hardly indicated, and decided unwisely, as he admitted, to use cocain. A little less than 2 cubic centimeters of cocain were injected. Just as Dr. Legueu was opening the articulation to remove the clots of blood, the patient complained of feeling oppressed, and asked to be placed in a sitting position. Hardly had this been done, when his face was convulsed, and he fell back dead, his complexion taking on a dark hue. An autopsy was not performed. The second case concerned a man 61 years old, suffering from strangulated hernia, dating from two days back. The condition was far from good, the pulse being at 140. Dr. Fredet, the chef de clinique, had been called, and he decided to use cocain. Only 1.5 centigrams were injected very slowly. The patient had already been prepared when the breathing began to be labored and vomiting took place twice. The face grew pale; the forehead was covered with perspiration, and notwithstanding two injections of ether death took place only twelve minutes after the injection. An autopsy was carried out. There were no signs of heart disease, but the right lung showed several infarcts of recent formation, about six to eight in all. The kidneys were diminished in size, but the capsule was easily removed. The cortical substance was, however, slightly diminished, not being more than 6 to 8 millimeters thick. The heart had stopped in systole, and as there were no signs of possible uremia, it may well be thought that death was due to syncope, caused by the action of the drug on the bulb. Dr. Legueu added that he considered two deaths out of 200 cases a rather large percentage, and he had decided for the present to refrain from using cocain. He considers that cocain may be sometimes indicated, but there are certain cases where it is best to abstain from its use.

Medullar Cocainization for Operations on the Head.

Such accidents as those described above do not seem to deter some operators from using larger doses, and Dr. Chaput of the Tenon Hospital, has been able to carry out recently operations on the arm and head. The doses used varied from 3 to 4 centigrams. In speaking of one of the operations on the arm, a disarticulation of the wrist, Dr. Chaput remarked that the patient complained of the pain, but did not cry out much. Of the three operations on the head and neck, one was for suppurating tubercular glands, another for removing the styloid process of the temporal, and a third for an abscess of the maxillar region. The dose given in this latter case was 4 centigrams and anesthesia of the chin existed after 14 minutes. Dr. Chaput admitted that analgesia was not complete, and said that it would be necessary to choose courageous subjects for such operations. One must admit that it does not seem quite clear why local anesthesia might not be used as well in such cases. Dr. Chaput recommends the following procedure before and after the injection. The patient should not eat before the operation; an hour before, he should be given an alcoholic mixture with 25 drops of tincture of digitalis and 20 grams of syrup of morphia. An elastic band should be placed around the neck before the injection. The injection should be made quickly, and immediately after 500 grams of saline solution should be injected under the skin of the thigh. All this, according to Dr. Chaput, would diminish noticeably all possible danger. He considers that anesthesia of the head should only be sought by this method when general or local anesthesia by other means are contraindicated.

Guinard's Modification of Tuffier's Technique.

Dr. Guinard claims to have found a means of suppressing all after-effects of medullar cocainization by using a solution of cocain in the rachidian liquid of the patient operated on. He described his technique at the recent Congress of Surgery. He collects 60 to 80 drops of this liquid in a sterilized bottle and adds 6 to 7 drops of a concentrated solution of cocain, about 1 centigram to 2 drops of water. The whole is then injected slowly. Dr. Guinard remarked that he had already carried out 50 operations with this technique, without a single accident. An article by Drs. Desfosses and Dumont was published on medullar cocainization. In a footnote they alluded to this modification of Dr. Guinard, and said: "Dr. Guinard would seem to have performed 50 operations." Dr. Guinard sent a paragraph to the *Presse Médicale* of November 13, in which he said this should be read as follows: "Dr. Guinard has performed over 70 operations without a single post-cocain accident." It is certainly a fact that medullar cocainization has caused a good deal of emulation, if not rivalry, among the surgeons who have employed it. Nothing of late has been heard from Professor Reclus, who showed himself so determined an adversary of its indiscriminate use. One finds that among the physicians of the hospitals as well as the men under them there is still a certain doubt as to its harmlessness, and the argument that they would not care to have themselves operated on in such manner would seem to plead in favor of reserving it for some few special cases.

Medical Knowledge Taught by Theatrical Plays.

There is a tendency on the part of playwrights in France to try to teach the public certain medical facts by means of the theater. Not long ago a play called *Les Remplacantes* showed the evils of employing wet nurses. Still more recently a drama called *Le Baillon*, i. e., "The Gag," was given as a means of showing the results of professional secrecy. A young woman is brought up in ignorance of the fact that she is tuberculous. One lover finds it out before the marriage ceremony takes place and jilts her. Another, who is kept in ignorance, finds it out when it is too late. The unconscious victim of this disease is looked upon as a plague-stricken creature, and wonders why even children are not allowed to embrace her. She at last finds out the secret. The dramatic author, Brieux, has recently finished a play called *Les Avariés, avarié* meaning decayed, spoilt, and in it he shows the danger of luetic contagion in marriage. He is a member of the league against syphilis, recently founded by several prominent medical men, among them being Fournier, and their ideas on this subject are put forth in this play. The public censor forbade, however, the giving of the play before the general public, so a select audience was chosen and the piece read to them by Brieux. There is nothing wrong in itself in the play, but it is to be doubted whether such topics can well be placed before the general public.

No Case of Bubonic Plague as Yet in France.

There has been quite a discussion at the Academy of Medicine on the quarantine inflicted on the passengers of the

Senegal. Dr. Bucquoy, who was on board, made some remarks on the lack of serum on board the boat, to which is due the death which took place. According to Dr. Proust, who is one of the best-known hygienists in France, it is impossible to oblige any but emigrant ships to carry serum. According to Dr. Debove, there is no lack of funds, as the state has not used half the amount which results from sanitary taxes. Dr. Monod made the remark that so far no case of plague had been seen in France, whereas in England, Scotland, Italy and Portugal there had already been several.

Professor Debove Chosen as Dean.

Professor Brouardel, who had filled the position of dean of the Paris Faculty for fifteen years, has just resigned, and his place has been taken by Professor Debove, who was named professor of clinical medecine when Potain retired.

Correspondence.

Reception of Professor Senn and His Companions in Tokio.

TOKIO, JAPAN, Oct. 25, 1901.

To the Editor:—I hope by this correspondence that our American professional brethren will understand that we Japanese medical men appreciate what is being done now in the United States for the advancement of Medicine. We were pleased to have received a visit from Drs. Nicholas Senn, Daniel R. Brower, Jacob Frank and William M. Mastin, while they were encircling the globe.

On the evening of the 27th a dinner was given in honor of the distinguished guests by the members of the Medical Profession in Tokio, Dr. Mastin being, much to our regret, detained in Yokohama on business, and a large company assembled, dinner commencing at 6:30. The hall was beautifully decorated and on the *menu* cards the flags of the United States and Japan were crossed in amicable folds. Baron Hashimoto proposed the health of our visitors, which was drunk with enthusiasm, after which Dr. Kitasato, of bacteriological fame, delivered an address in German, of which the following is a short abstract:

"Meine Herren! Es ist eine Ehre für uns, dass wir heute den berühmten Chirurg aus Chicago willkommen heissen, ich meine Herrn Prof. Dr. Nicholas Senn. Wir Japaner sind den Herren Amerikanern sehr dankbar für die Civilisation unseres Vaterlandes, denn der erste, welcher das geschlossene Thor Japans geöffnet hat, war der damalige amerikanische Commodore Perry; seither sind wir so weit gekommen, dass auch Japan zu den civilisirten Ländern der Erdoberfläche gehört.

"Vor einigen Monaten haben wir hier zwei grosse Forscher unter den amerikanischen Medicinern kennen gelernt, nämlich die Herren Prof. Dr. Mitchell und Prof. Dr. Keen, und jetzt zum dritten Male ist unser hochgeehrter Herr Prof. Dr. Senn bei uns; es ist das Zeichen, welches auch die Medicin zwischen Amerika und Japan in nähere Verbindung bringt.

"Meine Herren! Sie gestatten mir also, dass ich mein Glas erhebe und ein Hoch ausbringe auf Herrn Prof. Dr. Senn. Herr Prof. Dr. Senn lebe hoch, hoch und noch einmal hoch!"

The next speech was delivered in English by Dr. S. Suzuki, Deputy Surgeon-General of the Japanese Navy. After referring to the many interchanges of amicalities between the United States and Japan, and to the recent courtesy of the U. S. Government in sending a fleet to the unveiling of the Perry Monument at Uraga, he expressed the hope that the medical relations between the two countries might become closer. Japanese students of medicine have hitherto generally gone to Europe for study, but in no country had medical science made such strides as in America, and it was an honor to them all to welcome so eminent an exponent of American science as Dr. Senn, whose works on various branches of surgery and on the military surgery during the late Spanish-American war were well known to Japanese students of military science. He hoped that the medical bonds between the two countries would be drawn closer.

Dr. Tomatsuri then rose and spoke of the time when Dr. Senn and he had been thrown together in Cuba and Porto Rico during the Spanish-American war, and was glad to have this opportunity of publicly recording his gratitude for the great kindness he had received from Dr. Senn at that time. He had done his best to introduce Dr. Senn and his friends to everybody present; but he was sure that Dr. Senn would not remember all their names. He therefore took the liberty of presenting him with a list containing the names of all the company present, and hoped that Dr. Senn would accept it as a reminder of his many friends in Japan. Dr. Senn, in reply, spoke first in English and then in German. He had been much pleased, as every traveler is, with the natural beauties of the country in which he was traveling. Since coming to Tokio, he had been not only pleased but impressed with the evident progress of medical science. He had visited medical colleges, institutes, hospitals, all of which seemed to be perfectly organized, but what had struck him most was the completeness of the laboratory accommodation attached to these institutions. The Red Cross Society, too, had impressed him very much, and as a foreigner he felt pround to stand before them with the badge of the Society on his breast. He should have a great deal to say to his medical friends in the United States about the progress of this Society, and he felt sure that the Imperial Princes and Princesses, Barons Ishiguro and Hashimoto and all the other ladies and gentlemen connected with the Society deserved much praise for their successful work of charity. The flags of Japan and America had often been crossed before in token of amity, but never before, he believed, on any occasion connected with the medical profession. He took it as a good omen for the progress of medical science in both countries, in the light of the rising sun by day, by the light of the twinkling stars by night. He concluded by expressing his warmest thanks to Surgeon-General Baron Saneyoshi and to Fleet Surgeon Tomatsuri, but for whose kindness he would have been unable to get the thorough knowledge of Tokio medical work which he had now obtained.

Then, speaking in German, after reiterating many of the sentiments expressed in his English speech, he regretted that the time was too short to enable him to make their better acquaintance as he would leave Yokohama the next day. The dinner came to an end about 8:15 p. m. After a short conversation in the drawing room, our guests took their departure to catch the 9:20 train for Yokohama. Professors Kitazato and Sato, Deputy Surgeons-General Totsuka and Suzuki, and Fleet Surgeon Tomatsuri, accompanied them as far as the depot. The party left Yokohama for San Francisco per *America Maru*, at noon, September 28.

DR. B. TOMATSUKI,
Fleet Surgeon I. J. Navy.

"A Place to Clean the Teeth Needed in Railroad Car."

PITTSBURG, PA., Nov. 23, 1901.

To the Editor:—The communication of Dr. Henry D. Fulton in THE JOURNAL of November 9, on the needs of a proper place for cleaning the teeth in the toilet room of sleeping cars, and your own observations on the subject, in the same issue, are most timely and important.

While every traveler with any sense of refinement must have regarded this filthy practice with disgust, that is, the spitting and cleaning of the teeth in bowls that are used for washing the face, it is strange that no protest has been entered against it or remedy suggested. Surely the ingenuity of the modern car-builder could quickly devise a remedy if the public would only insist on it. I have not for many years used these bowls nor any other bowls in public places for washing purposes, but always wash with the running water from the spigot.

However, in the sleeping car this can not be done, as you have remarked, as the spigot is too near the bowl, and the water will not flow continuously. My method is simple, and is doubtless resorted to by many other travelers. It is the following: Take a clean towel and soak the half of it under the spigot of the drinking water tank, being careful to let no part of it touch the marble slab. The face and neck can then be washed very comfortably and refreshingly with this wet towel, which can be wrung out over the bowl and again saturated as

often as desired. Besides this, one has the delightful satisfaction of knowing that he is not being contaminated with filthy things.

Can you not bring Dr. Fulton's brief but forcible letter to the attention of the sleeping-car companies?

SAMUEL AYRES, M.D.

Cause of Asthma.

DEPEW, N. Y., Nov. 18, 1901.

To the Editor:—In your report of the meeting of the New York State Medical Association last month, you stated that my "idea is that asthma arises from an inability of the blood to carry the requisite quantity of oxygen," whereas I claimed that this abnormality of the blood causes but one variety of asthma, the asthmatic anematosis. The dyspnea in the other varieties of asthma, i. e., the asthmatic lymphocytosis and the asthmatic toxic leucocytosis, is due largely to a tubular obstruction from the disintegration of an unstable blood, which in the lymphocytic variety fills the air tubes with lymph and mucus; that together with the collateral engorgement of the lymph capillaries nearly closes the lumen of the air tube, while in the toxic leucocytic variety the glands in the larynx and air-tubes are enlarged, producing the wheeze and dyspnea.

Yours respectfully, G. N. JACK, M.D.

Married.

LOWERY H. BEAR, M.D., to Miss Zella Barnett, both of Vevay, Ind., November 12.

ROY L. CONNOR, M.D., Detroit, Mich., to Miss Daisy B. Wick, at Baltimore, November 14.

WILLIAM L. RENICK, M.D., to Miss Adah Roberts, both of Butte, Mont., November 12.

JOHN A. BADGLEY, M.D., Malta, Ill., to Miss Genevieve M. Wright, at Chicago, November 5.

GEORGE C. WEGEFARTH, M.D., to Miss Margaret Wiessner, both of Baltimore, November 14.

ANDREW HENDERSON WHITBRIDGE, M.D., to Miss Madeline Lavinia Gary, both of Baltimore, November 14.

ABRAM BARNES HOOE, M.D., to Miss Eliza Nutt Mitchell, at Irvington, Lancaster County, Va., November 12.

THOMPSON J. TAYLOR, M.D., Richmond, Ky., to Miss Long, Georgetown, Ky., at Irvine, Ky., November 11.

ALEXANDER GRAY FELL, M.D., Wilkesbarre, Pa., to Miss Rena Maud Howe, Green Ridge, Pa., November 14.

LESLIE C. BROCK, M. D., Smithfield, Va., to Miss Annie Lelia Minton, Everetts, Isle of Wight County, Va., November 6.

Deaths and Obituaries.

James F. Alexander, M.D., University of Georgia, Augusta, 1849, died at his home in Atlanta, November 14, after an illness of one month, aged 77. He was a native of South Carolina, but after his graduation located in Atlanta. He was an ardent secessionist and at the outbreak of the war went to the front with the Seventh Georgia Infantry. After six months' service he was assigned to hospital duty in Atlanta. He was prominent in the medical profession and served as a member of the local board of health for ten years, and as its president for several terms; he was also a member and some-time treasurer and president of the Medical Association of Georgia. While serving on the board of health in 1896, during the yellow fever scare, he opened the doors of Atlanta to the refugees, and his contention that the disease would not spread in Atlanta was shown to be correct.

Stuart Eldridge, M.D., Acting Assistant Surgeon, U. S. Marine-Hospital Service, on duty in the office of the United States Consul General, Yokohama, Japan, is dead. He was a native of New Jersey, lived in Waukesha, Wis., for several years, and was afterward connected with the Agricultural Department, Washington. In 1871 he went to Japan with General Horace Capron, and was afterward employed by the Japanese government, and organized hospitals at Hakodate and elsewhere. He was assigned to duty in Yokohama in 1894.

Levi L. Todd, M.D., University of Louisville, Ky., 1856, a member of the American Medical Association and one of the oldest and most esteemed practitioners of Indianapolis, Ind., died at his home in that city, November 16, from heart disease, aged 71. He commenced the practice of medicine in Paris, Ill., in 1858, and moved to Indianapolis in 1874. He was a member and at one time president of the Marion County Medical Society and a professor in the College of Physicians and Surgeons.

Dwight W. Day, M.D., University of Buffalo, N. Y., 1861, died suddenly from apoplexy while reading a paper before the Inter-County Medical Society at Eau Claire, November 19, aged 60. Dr. Day was a native of New York, served in the Civil war as surgeon in the Union army, at the close of the war located in Eau Claire and was at one time mayor of the city. He was prominent as a physician and was a member of the American Medical Association.

Zachary Taylor Harvey, M.D., College of Physicians and Surgeons, Chicago, 1883, died at his home in Council Grove, Kan., November 15, from paralysis, aged 49. He was a native of Illinois and practiced for a time in Brooklyn, Ill., but moved to Kansas in 1887. He was a member of the Golden Belt Medical Society, Kansas State Medical Society and of the American Medical Association.

Samuel Ashhurst, M.D., University of Pennsylvania, Philadelphia, 1861, died in London, November 12, from acute bronchitis superinduced by fog, after a short illness, aged 61. As Dr. Ashhurst was a man of independent fortune, he did not practice for pecuniary gain but his work was among his friends and the poor. He was prominent in philanthropic work of all kinds.

David C. Reynolds, M.D., University of Pennsylvania, Philadelphia, 1852, a practitioner successively in McVeytown and Lockhaven, but for the last 25 years a resident of Philadelphia, died at his home in that city from apoplexy, November 12, aged 71. He was the founder of the Commonwealth Provident Association and its medical director.

C. Juste Touatre, M.D., Faculté de Médecine, Paris, France, 1865, who retired from practice three years ago in New Orleans, and went to France to live, died last month in that country. He will be remembered as the author of a work on yellow fever, published by the *New Orleans Medical and Surgical Journal.*

Richard M. Phillips, M.D., Missouri Medical College, St. Louis, 1852, a native of Kentucky, but for more than twenty years a resident of Topeka, Kan., died at his home in that city, November 15, from heart disease associated with dropsy, after an illness of eleven months, aged 74.

James Irving Marcley, M.D., College of Physicians and Surgeons, New York, 1873, was suffocated in a folding bed at his residence in Buffalo, November 13, aged 54. For several months Dr. Marcley had not been in active practice but had been connected with a furnace company.

Charles R. Stephens, M.D., Bellevue Hospital Medical College, New York, 1874, formerly a practitioner of Omaha, Neb., but of late years a resident of South Pasadena, Cal., died at Victor, Cal., November 14, from pneumonia.

Wilford J. Bates, M.D., Rush Medical College, Chicago, 1861, a practitioner of Ransom, Hillsdale County, Mich., died suddenly, November 16, from heart disease, while making a professional call at Sibley's Corners.

Agnes Turner, M.D., College of Physicians and Surgeons, Chicago, 1901, died at Epworth Hospital, South Bend, Ind., November 18, from nephritis following typhoid fever, after an illness of nine weeks, aged 39.

Henry A. Morgan, M.D., Medical College of Virginia, Richmond, 1850, died suddenly at Suffolk, Va., November 10,

from heart disease, aged 74. He moved to Suffolk from Gates County, N. C., ten years ago.

D. H. **Parker, M.D.,** Medical College of Ohio, Cincinnati, 1873, died at his home in Medon, Tenn., November 14, after a lingering illness, aged 60. He represented Madison County in the state legislature in 1891.

Mortimer **Bainbridge Ruggles, Jr., M.D.,** one of the resident staff of the Manhattan State Hospital, Islip, Long Island, N. Y., died from acute nephritis, November 15, aged 22. He was ill only one day.

James **H. George, M.D.,** Medical College of the State of South Carolina, Charleston, 1876, a prominent physician of Linden, Marengo County, Ala., died at his home in that place, November 10.

George **H. Marmion, M.D.,** University of Pennsylvania, Philadelphia, 1866, a specialist in diseases of the eye and ear, died at his residence in Washington, D. C., November 12, from apoplexy.

Alexander **N. Simpson, M.D.,** Missouri Medical College, St. Louis, 1878, coroner of Mineral County, Colo., was found dead with a bullet wound in his back in his office at Creede, November 16.

T. O. Linthicum, M.D., College of Physicans and Surgeons, Baltimore, 1883, died near Corbins, Caroline County, Va., November 11, from fever, after an illness of several weeks, aged 45.

Andrew J. Stoner, M.D., Jefferson Medical College, Philadelphia, 1853, one of the pioneers of Decatur, Ill., died at the Jacksonville Hospital, November 13, after a short illness, aged 76.

L. A. Schaefer, M.D., University of Halle, Germany, 1869, one of the oldest practitioners at Schuyler, Neb., was run over and killed by a train at that place, November 15.

Guy Coulter, M.D., Jefferson Medical College, Philadelphia, 1889, a well-known physican of Columbus, Ohio, died at Grant Hospital after a short illness, aged 40.

Charles L. Hormanson, M.D., University of Pennsylvania, Philadelphia, 1881, died from Bright's disease, at Onancock, Va., November 16, aged 43.

Isaac K. Snell, M.D., College of Physicians and Surgeons, New York, died at his home in Brooklyn, November 13, aged 77.

Miscellany.

Sanatorium for Tuberculosis.—The Medical Society of St. Louis City Hospital Alumni on November 21, considered the following resolution offered at the meeting of November 7: Whereas, The provision, by state government, of sanatoriums for the reception and care of tuberculous persons has become an acknowledged necessity for the better protection of the public against tuberculosis in its various forms; and, Whereas, Several states already possess such sanatoriums while Missouri, although the fifth state in the Union in order of population, has taken no step toward providing for the establishment of such an institution, therefore be it Resolved, That the Society of City Hospital Alumni recognizes the urgent necessity for an adequate institution designed for the exclusive care and treatment, both hygienic and medical, of tuberculous persons in the State of Missouri, the said institution to be erected and maintained by the state government. 2. That this society shall at once, by correspondence and otherwise, seek to enlist the active co-operation of other medical societies and bodies, and of the public press throughout Missouri to the end that a sanatorium, commensurate with the importance of the object sought, be authorized by legislative action, the same to be erected in some suitable location in the mountainous part of the state. 3. That copies of these resolutions be transmitted to all other medical societies in the state, to medical colleges, to the medical press and the local daily press, to the governor, and members of the general assembly; and that a persistent agitation of this subject be maintained in order that public opinion may be so influenced as to secure favorable action by the next legislature toward the more effectual prevention and control by approved methods of one of the most destructive diseases to which mankind is liable.

DINNER TO DR. T. GAILLARD THOMAS.

About three hundred members of the medical profession assembled at a dinner at Sherry's on the evening of November 21, to commemorate the 70th birthday of Dr. T. Gaillard Thomas, Emeritus Professor of Obstetrics and Gynecology of the College of Physicians and Surgeons. Dr. Thomas was born on Edisto Island, near Charleston, S. C., on November 21, 1831, and was graduated in Charleston in 1852. Shortly after this he was resident physician at Bellevue Hospital, and later spent some time in the Rotunda Hospital, Dublin. Dr. J. W. McLane, New York, presided at the dinner, and many physicians of prominence were present to do honor to their distinguished and venerable guest. Among those who spoke were Dr. W. H. Welch, Baltimore; Dr. George B. Shattuck, Boston; Dr. S. Weir Mitchell, Philadelphia; the Rev. Dr. D. H. Greer, New York, and Judge Howland, New York.

An interesting incident was the reading of the following letter from Dr. John T. Metcalfe, who is in his 84th year:

"The infirmities you wot of forbid me to join in welcoming our friend Doctor Thomas to the 'Senate of the Seventies.' Let this be my tribute to an occasion that I rejoice to have lived to see, that from the summit of my ancestral years his course, in a life as open to me as to himself, appears as the day-dreams of my own youth. Zealous as an associate, faithful as a friend, in my declining years he has unfailingly sought to repay a debt that was never due by the devoted affection of a son."

In response to the many kind things said about him, Dr. Thomas spoke as follows:

Some men are born egotists; some achieve egotism; and upon some egotism is thrust. In the name of simple justice I declare that if I score a record in this line to-night, the surpassing kindness of those who surround these tables is entirely to blame.

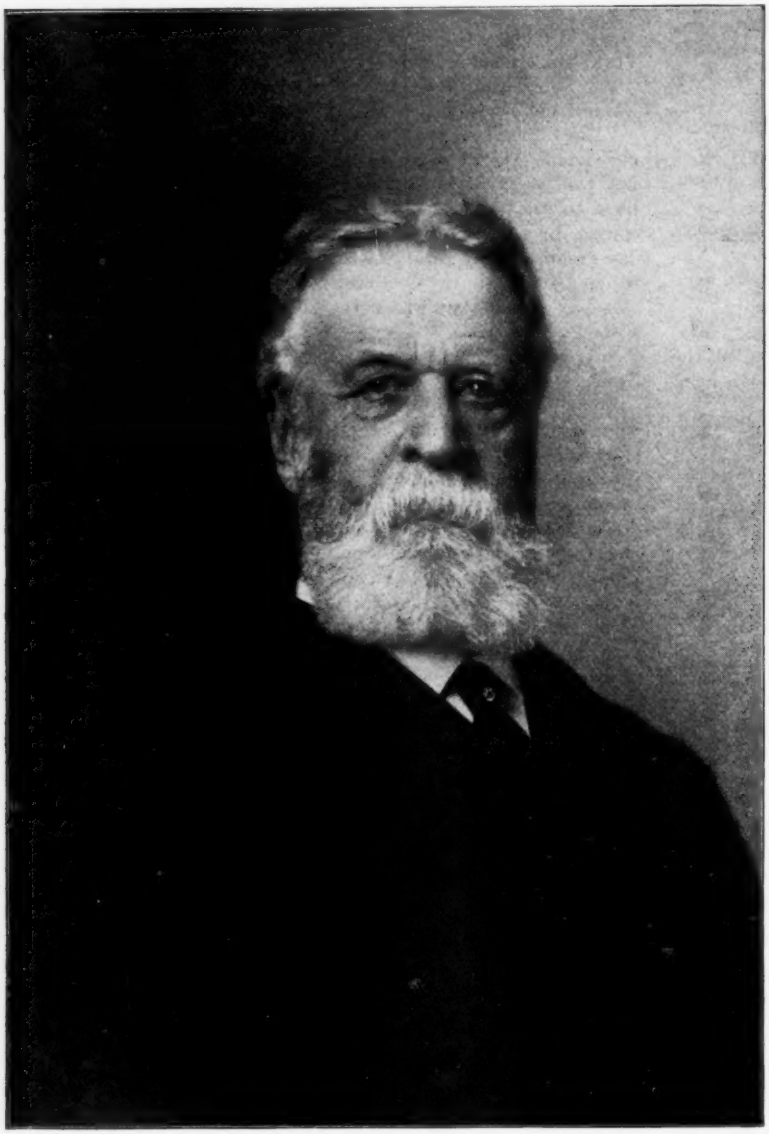
You entertain me at a most charming banquet; invite gentlemen whom princes would be proud to own as sponsors, to speak kindly of my past; and you make me happy by friendly glances which shall be forever engraved upon the tablets of my heart. Even this is by no means the full measure of your kindness to me. Deep down in the depths of the heart of every man of proper feeling, there lurks the desire to have at the close of his career the approval of the fellows of his guild, be that guild a common trade or one of polite learning. You who have borne to me the relation of brother practitioners and have striven beside me, shoulder to shoulder in the keen battle of life; and you, who as students, have judged me as teacher, writer and clinical lecturer, have to-night sealed my past career with the imprimatur of your approval! Than this, no act of yours could have conferred upon me more real pride and pleasure! Through the whole length of a laborious career, which has now reached a half century; in bright periods and in dark ones; in fair weather and in tempestuous; this approval has even been the beacon light upon which mine eyes have rested, the prize for which I have striven. Without it all other success would have been like Dead Sea fruit in my hands, and distinction would have been like dross. Thanks to you, this night will, with its pleasant memories, be ever cherished as the proudest era of my existence!

To-night I feel like an old man who looks into the eyes of his sons and thrills with satisfaction and joy that he has still a hold upon their affections. As I look from face to face I see no strangers here, I see the faces of those whose presence in the college halls has filled me with ambition and urged me on to effort; whose attendance in the hospital wards has brought forth, by their manifest interest, the best that was in me.

As I stand here I look backward down the dim vista of fifty years and see the disembarkation of a young physician of 21, from a coasting schooner from South Carolina, without one acquaintance in this great city, and with a purse no more plethoric than that which usually falls to the lot of the son of a clergyman of the Episcopal church. It is he who now thanks you for celebrating his arrival at threescore years and ten.

As I look I see dimly, like giants enveloped in a mist, the great physicians of the past: the tall, fine figure of the great Valentine Mott, with his classic features and beautiful face; the learned and eccentric John W. Francis; the courteous Delafield, and the erratic Martin Paine; later, the striking and attractive Willard Parker, John Murray Carnochan and Alonzo Clark; and later still, Van Buren, Markoe, Barker, Austin Flint, and the brilliant and accomplished John T. Metcalfe. All gone except the last, who, at the age of 83 years, lives in dignified retirement, surrounded by every blessing for which man can ask in his declining years.

And then my thoughts turn to men of my own period of life. Of these, there were ten young men who clustered as aspirants



DR. T. GAILLARD THOMAS.

for place around the College of Physicians and Surgeons and the University Medical College. They were George T. Elliott, Donaghe, Sands, Draper, Bumstead, Agnew, Otis, Loomis, Budd and myself. Of these ten, nine are gone, and I only remain to recall their names. Truly a half century appears like a long time when estimated by those who have fallen during its passage.

But as I continue my retrospective glance more cheerful reminiscences come to my mind in connection with the wonderful changes which this period has wrought in the science and art of medicine. The science of medicine, founded by Hippocrates in the little Greek Island of Cos, 400 years before Christ, is now 2300 years old! Did it ever occur to you that during the last half century, the fifty years in which you and I have been vouchsafed the great privilege of living, there has been done, for the advancement and growth of medicine, more than was done in the 2250 years which had preceded them? Think for a moment of the wonders which we have seen effected in and for medicine in that time! We have seen the "cellular pathology" of that most eminent of living physicians, Rudolph Virchow, proved true beyond question, and made the basis of a grand and imposing superstructure. We have seen pain annihilated by anesthesia, so that the human body could lend itself without sensation to the perfection of the surgeon's art; we have seen the vision of the physician so magnified in power as to penetrate the opaque walls of the body; and we have seen surgery, thus aided, lifted up from its lowly estate as a mechanic art and placed almost upon the level of an exact science. We have seen the primordial elements of disease, that bacterial host, invisible to the men of old, brought face to face with us by the miracle-working microscope, and by preventing their agency in the production of sepsis, we have minimized the death-rate of surgical operations, and almost stamped out puerperal fever. Working upon the same lines, we have succeeded in rendering impossible forever those appalling epidemics of the Plague, Yellow Fever and Cholera; those pestilences, which for our fathers "walked by darkness" in their gruesome work of decimating the nations of the earth. We have seen the entire field of gynecological surgery, the world over, revolutionized by the eminent labors of Marion Sims, our late associate, and we have seen practical medicine elevated and freed from previous doubt and uncertainty by the wonderful influence of clinical thermometry.

We have detected the true pathology of those obscure cases of so-called idiopathic peritonitis which, from the very dawn of time until our day, have filled year by year throughout the world, not thousands, but millions of graves, and we have experienced an honest pride in seeing a surgical remedy for appendicitis, their true cause, placed upon an enduring basis by McBurney, a son of New York.

Toward the close of the career of the great Napoleon, his followers designated three months "the hundred days of glory"; well may the votaries of medicine, in surveying the results of the last half-century, designate it our "fifty years of glory!" Remember that I have not been enumerating the great advances made in our noble art in modern times, but only giving examples of those which have made glorious these last fifty years. Will you not then join me in grateful thanks that our destinies have been cast in the most glorious and productive half-century for medicine that the world has ever known!

The man who has devoted fifty years of his life to any one subject must have had fixed in his mind some deductions which, upon such an occasion as this, should be worthy of mention. I venture to cite only two. First, as I have grown old in the ranks of medicine the conviction has been borne in upon me with yearly increasing force that the noble art of healing, that art which the Savior of the World delighted to practice, is destined to become in its full development, in spite of the flood of superstition and credulity which on all sides now assails it, one of the chief bulwalks of society; that the wonderful development which has marked the last half-century is a reliable harbinger of the future; and that the improved and developed medicine of that future will constitute one of the chief factors in shaping the progress and civilization of the world.

Do you ask me: "What shall be the sign when these things shall be fulfilled?" I answer: When, in the cabinet of the President of the United States, there shall be a Secretary of Hygiene, whose function it shall be to avail his country of all that concerns the public health. Then will a vigorous quarantine guard every harbor of our land, an active police hunt down those who adulterate our food; and well-appointed laboratories in every state keep careful watch over the water and milk supplies which are now annually responsible for millions of deaths!

Second, my respect for my brethren of the medical profession throughout the world—from the prosperous professor whose home is a metropolis, to the obscure practitioner who plies his arduous calling, trudging the highways with much of labor, and little of profit—has grown with my growth and strengthened with my strength. And the world at large would share my feelings if it knew, as I do, that any one of these men who was willing to barter honor for gold could by so doing exchange a life of labor and of small means for one of leisure and of luxury. In medicine, the diploma imposes honor upon the physicians, even as the gown does upon the priest; and, Glory be to God, the degradation of the one is as rare as is that of the other!

I must not detain you longer except for the purpose of thanking you for your exceeding kindness. But how am I to thank you for it when its very magnitude makes me bankrupt in thanks? In a few moments I shall leave this brilliantly-lighted hall and emerge into the darker streets below. When I do so, I shall take the initial steps that lead into that decade of man's life which an inspired writer declares will surely be attended by "labor and sorrow." Whether my journey in it be long or short, be assured that the memories of this night will serve to lighten that labor and give surcease to that sorrow.

My kind, good friends; my dear brothers, from the depths of my heart I thank you!

A Story by Telegraph.—From the Washington *News Letter Leaflet*, an eddyite publication apparently devoted to the exploitation of the remarkable healing abilities of its editor, we clip the following: Telegram 1.—Earlham, N. Mex., Aug. 11, 1901. *O. C. Sabin*, 1800 Belmont Avenue, Washington, D. C.: Treat son Earnest for fever. (Signed), ———. Telegram 2.—Earlham, N. Mex., Aug. 13, 1901. *O. C. Sabin*, 1800 Wyoming Avenue, Washington, D. C.: Fever yet; some better; treat parents for fear. (Signed), ———. Telegram 3.—Earlham, N. Mex., Aug. 15, 1901. *O. C. Sabin*, 1800 Belmont Avenue, Washington, D. C.: Earnest well; stop treatment. (Signed), ———. The use of identical methods for the alleviation of both fever and fear—and presumably fractures would receive the same "treatment"— illustrates the therapeutic possibilities of eddyism as accepted by the deluded minds of the followers of that cult.—*Medical Record.*

Official Tests of Drugs in Belgium.—The Belgian authorities publish in the *Bulletin de l'Hygiene Publique* the reports of the inspectors of drug-stores and pharmacies, without mentioning names. The *Semaine Médicale* quotes certain paragraphs from the latest report which explain the variable results obtained from prescriptions in many cases. It states, for instance, that reduced iron is almost always poor, containing sulphids and only 40 to 60 per cent. of iron instead of the proper 89 per cent. Tincture of iodin seldom contains more than 30 to 40 per 1000 of free iodin instead of the normal 70 per 1000. Similar inspection and reports might be of advantage in other countries, it adds. The medical corps and the pharmacists should be enlightened as to the actual composition of the substances they are using.

Official Inspection of Baby Farms.—The Berlin police department is to appoint at once ten women "helpers," whose duties are to visit the women in their district who board children under 4 years of age, and report any neglect or abuses. The "helpers" are to be paid about $120 each.

Societies.

COMING MEETINGS.

Indian Territory Medical Association, Muskogee, Dec. 3-4, 1901.
Western Surgical and Gynecological Association, Chicago, Dec. 18-19, 1901.

Thumb (Mich.) Medical Society.—A new organization consisting of the physicians of Huron, Tuscola and Sanilac counties in the "Thumb" of Michigan is being formed by Dr. William Kerr, Bay City.

Arizona Academy of Medicine.—The annual meeting of the Academy was held at Phoenix, November 7. Dr. Ancil Martin was elected president; Dr. John W. Foss, vice-president, and Dr. Palmer, secretary-treasurer.

Clark County (Ind.) Medical Society.—At the meeting of this Society, held at the Reformatory Hospital, Jeffersonville, November 5, Dr. Davis L. Field was elected secretary, to succeed Dr. Jacob T. Davis, deceased.

Wabash Railway Surgeons' Association.—The annual meeting of the surgeons of the Wabash Railway was held in St. Louis, November 14. Dr. Smith A. Spilman, Ottumwa, Iowa, was elected president; Dr. John T. Rice, Attica, Ind., vice-president, and Dr. Christian B. Stemen, Fort Wayne, Ind., secretary.

Maine Academy of Medicine and Science.—The forty-seventh stated meeting of the Academy was held at Portland, November 11. The invitation to send a representative to the first Congress of Medicine for Egypt, was accepted and Dr. Samuel J. Bassford, Biddeford, appointed delegate. Dr. Edwin M. Fuller, Bath, was elected president and Dr. Charles W. Bray, Portland, trustee to succeed himself.

Medical and Chirurgical Faculty of Maryland.—The semi-annual meeting of this body was held at Elkton, Cecil County, November 19. Two sessions were held, the Faculty being entertained at lunch by the Cecil County Medical Society. The address of welcome was made by Dr. Joseph V. Wallace, Chesapeake City. Many papers were read. A discussion on typhoid fever was opened by Dr. William Osler, Baltimore.

Inter-County (Wis.) Medical Society.—The annual meeting of this Society at Eau Claire was saddened by the death of one of its members, Dr. Dwight W. Day, while reading a paper before the society. Dr. Olaf M. Sattre, Rice Lake, was elected president; Dr. Christian Midelfart, Eau Claire, first vice-president; Dr. E. Lewis Fletcher, Augusta, second vice-president, and Dr. Caroline Hedger, Eau Claire, secretary and treasurer.

Sangamon County (Ill.) Medical Society.—The annual meeting of this Society was held at Springfield, November 11. Dr. Lewis C. Taylor was elected president; Dr. Margaret Taylor Shutt, vice-president; Dr. Frank Fisher, secretary, and Dr. Percy L. Taylor, treasurer, all of Springfield. At the conclusion of the business meeting the members enjoyed a banquet in the tea-room of the Leland, at which J. Norman Dixon was toastmaster.

Southern Colorado Medical Association.—The first annual session of this Society was held at Canon City, November 12 and 13, with about 40 members in attendance. Dr. William A. Campbell, Colorado Springs, was elected president; Dr. Robert J. Peare, Canon City, first vice-president; Dr. Benjamin F. Cunningham, Cripple Creek, second vice-president; Dr. Cyrus F. Taylor, Pueblo, secretary, and Dr. J. A. Blunt, Pueblo, treasurer.

Medical Society of the City Hospital Alumni, St. Louis. This Society held its celebration November 4. More than one hundred sat down to a repast at Faust's. Besides the active local members of the Society, there were in attendance Dr. E. H. Gregory, St. Louis; Dr. Julius Kohl, Belleville, Ill., the oldest member of the Society, and Dr. T. Holland, Hot Springs, Ark. Brief addresses were made by Drs. Gregory, Kohl, Tuholske, Grindon and Lewis.

Washington County (Md.) Medical Society.—This Society held its annual meeting at Hagerstown and elected the following officers: Dr. Hamilton K. Derr, Hagerstown, president; Drs. Henry C. Foster, Clear Spring, and John M. Steck, Smithsburg, vice-presidents; Drs. W. Baker Morrison and W. Preston Miller, Hagerstown, secretaries, and Dr. Christian R. Scheller, Hagerstown, treasurer; Dr. C. L. G.

Anderson, Smithsburg, delivered an address from notes taken in the Spanish-American and Philippine wars.

Franklin County (Pa.) Medical Society.—This society, at a meeting held at Mercersburg, elected the following officers: Dr. P. Brough Montgomery, Chambersburg, president; Drs. Oliver P. Stoey, Roxbury, and J. W. Croft, Waynesboro, vice-presidents; Dr. John J. Coffman, Scotland, recording secretary; Dr. H. Clay Devilbis, Chambersburg, corresponding secretary; Dr. David Maclay, Chambersburg, treasurer, and Dr. H. G. Chritzman, Welsh Run, censor. After the business and scientific meeting a banquet was given at the Mansion House.

Birmingham (Ala.) Medical Library Association.—A meeting of the physicians of Birmingham was held November 9 for the purpose of considering the organization of a library association. Dr. John C. LeGrand was elected president; Dr. Dyer F. Talley, vice-president; Dr. William P. McAdory, secretary, and Dr. Robert V. Mobley, treasurer. It is the purpose of the Association to open a library, equipped with works bearing upon the medical and surgical professions, to be open to the members. All the leading periodicals bearing on these subjects will be taken.

Plant System Medical and Surgical Association.—The first annual meeting of the surgeons of the Plant System was held in Savannah, Ga., November 13 and 14, about sixty members being present. Papers were read by Drs. J. N. Baker, Montgomery, Ala.; A. L. R. Avant, Patterson, Ga.; J. E. Lee, and Robert P. Islar, Waycross, Ga.; and Julian C. Woodruff, Charleston, S.C. The latter city was selected as the next place of meeting, the second Tuesday in November, 1902. Dr. Charles R. Oglesby, Waycross, Ga., was elected president; Dr. Julian C. Woodruff, Charleston, and Dr. William R. Chalker, Lake City, Fla., vice-presidents; and Dr. James H. Lattimer, Waycross, Ga., secretary and treasurer.

California Northern District Medical Association.—The eleventh annual meeting of this body was held in Sacramento, November 12. Addresses of welcome were delivered by Hon. George H. Clark, mayor of Sacramento; Dr. James A. McKee, president of the Sacramento Society for Medical Improvement, and Dr. James H. Parkinson, chairman of the Committee of Arrangements. The following officers were elected: Dr. Charles R. Harry, Stockton, president; Drs. John T. Jones, Grass Valley, Moses W. Ward, Woodland, and Edward W. Twitchell, Sacramento, vice-presidents; Dr. Elmer E. Stone, Marysville, secretary, and Dr. Oscar Stansbury, Chico, treasurer. The proceedings closed with a banquet, over which Dr. Frank B. Sutliff, Sacramento, presided as toastmaster.

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Fourteenth Annual Meeting, held in Richmond, Va., Nov. 12, 13, 14, 1901.

(Continued from p. 1411.)

President Dr. Manning Simons, Charleston, S. C., in the Chair.

SECOND DAY—MORNING SESSION.

DR. E. G. WILLIAMS, Richmond, Va., reported a case of aneurysm of the abdominal aorta which was treated by injections of a solution of gelatin into the intercellular tissue with marked beneficial results.

Closure of Abdominal Incision; with Remarks on Ventral Hernia.

DR. I. S. STONE, Washington, D. C., read this paper. Ventral hernia following abdominal operations is generally due to wound infection and suppuration, with loss of fat and cellular tissue. Hernia may, however, result from imperfect wound coaptation, or may be a result of some accident after operation. It is not infrequently due to enteroptosis, which may prove an obstacle to success, which may defeat all attempts at relief, however well planned. In all ventral hernia the skin and peritoneum will be found united, a condition which doubtless began soon after the wound was closed. Wound infection will usually result in suppuration with loss of tissue, which leaves a space between the parts and also permits the sutures to become loosened. This space is filled with granulation tissue as healing progresses, but an important change has already occurred, namely, the peritoneum and skin are nearer together than before and the separation of the muscle and fascia has, perhaps, allowed the entrance of a wedge of peritoneum to enter and to still further separate the walls of the wound. It is easily seen that in this way a ventral hernia is practically assured before the wound has entirely healed, or, at least, before firm union has taken place. In fat subjects the greater liability of wound infection increases the danger of hernia, and in these we have the additional factor of greater intra-abdominal pressure. The author has had excellent results with both buried and through-and-through transfixion sutures. He prefers the latter because the material is sterilized with more certainty and the closure requires less time. He prefers to make the incision in or near the median line, does not avoid the muscle, but divides the fibers directly down to the peritoneum.

One of the precautions taken by the writer is to excise the long flap of peritoneum before placing the sutures. This excessive long flap is not well-nourished, and if allowed to remain favors a collection of blood or serum between it and the muscle in front. In any wound of from three to six inches in length a strip of peritoneum of one or two inches in width may be removed with advantage. This disposes of that portion of the peritoneum which has been overstretched during the operation and which has possibly been infected, and which is not well-nourished. The removal of the flap permits a perfect edge-to-edge coaptation and prevents, to some extent, the wedge of peritoneum, which is the beginning of a ventral hernia.

My First Abdominal Section.

DR. THAD. A. REAMY, Cincinnati, read a paper with this title. The operation was done in February, 1864, at the patient's house. She was 60 years of age; married; the mother of three children. The cyst removed proved to be multilocular, weighing with contents, 46 pounds. The incision was made in the median line, and was five inches in length. Adhesions to the parietal peritoneum were extensive and at many points comparatively firm. On their separation, which was done by the fingers, sponge and handle of a scalpel, considerable and persistent hemorrhage supervened. Before attempting to deliver the tumor it was tapped with an ordinary trocar, and patient turned upon her side to deliver the fluid into a vessel. The pedicle was ligated en masse by a heavy cord of shoemaker's thread (not silk). One interesting feature was the manner in which hemorrhage was controlled in this case. Regarding this point Dr. Reamy says: "The weather was cold, with an abundance of clean snow on the ground. I ordered some brought in. Compressing it with my hands into firm balls, it was held against the bleeding surfaces. The bottom of the pelvic cavity soon contained quantities of water from the melting snow, mixed with blood. This was sponged out and the compression with snowballs continued. In a comparatively short time, to my delight, the hemorrhage ceased: when I dried the cavity with sponges, and closed, without drainage, except what could be secured by the ligature already referred to, which was left protruding from the lower angle of the abdominal incision. The abdominal incision was closed by through-and-through sutures of the same material and size as that used for ligating the pedicle." Patient made an excellent recovery.

Some Avoidable Causes for Disaster in Appendicitis Work.

DR. ROBERT T. MORRIS, New York City, read a paper on this subject. Among other things, the author said: If we step out upon the street and get ten healthy policemen, and put half a yard of gauze into their abdominal cavities to-day, we shall find at the end of a week that "we did not get them in time." That is an excuse which is so often offered when we try to make a weak and poisoned appendicitis patient bear what strong men can not bear. If, in addition to the mechanical insult offered by gauze packing, we add the chemical insult of iodoform, we should have still fewer of these policemen in time. They would have what most house surgeons would call septicemia. The differential diagnosis between septicemia and dangerous iodoform poisoning is difficult to make, excepting on the objective evidence offered by the presence of

iodoform in the wound, the presence of free iodin in the urine, and a wound of healthy appearance while the patient is failing. In insidious iodoform poisoning the wound looks well while the patient does not. In septicemia neither the wound nor the patient looks well. That is a constant diagnostic difference. Gauze packing shocks the patient, lessens his natural resistance, and consequently interferes with his manufacture of phagocytes. Treatment of to-day should avoid interference with the patient's ability to furnish abundant leucocytes. Accessible statistics show us that we do not need to employ gauze packing in our appendicitis work.

Extensive and multiple incisions lessen the patient's ability to furnish leucocytes for the occasion when all of his natural protective powers need to be respected by the surgeon. A beginner needs a great deal of room at the patient's expense, but it is in the interest of the patient to work chiefly by the sense of touch through small incisions. In other words, to come as nearly as possible to letting the patient alone. Another approach toward the idea of letting the patient alone consists in rapid work without much exposure or handling of bowel. Almost any appendicitis operation, no matter what the complications, should be completed in from 15 to 30 minutes. Many a patient who is holding finely to his natural resistance at the end of 15 minutes has lost it at the end of 45 minutes. The idea that the surgeon must get all of the pus out of the peritoneal cavity is out of date. The leucocytes will attend to the matter more effectually. The principle is this: the bacteria and the leucocytes are at warfare with each other in any case of infection. The leucocytes may be almost on the point of winning, but not quite. If we step in and help the leucocytes by removing most of the pus, with its army of bacteria and toxins, the balance of power is transferred to the phagocytes, and they are competent to care for the case, as a rule, if the surgeon himself has not disabled the patient's resistance. It is a constant surprise to see how well appendicitis patients recover, and without post-operative complications if we make the way easy for them. The best way, of course, to avoid disaster is for the surgeon to do the operation before the bacteria have operated very much. Physicians sometimes overlook the fact that the patient is undergoing an operation all of the while that bacteria are at work upon the appendix, so that it really comes to be a question as to who shall be allowed to operate in the case, the bacteria or the surgeon.

President's Address.

Dr. Manning Simons, Charleston, directed attention to the deaths of Drs. Hunter McGuire, of Richmond, and W. D. Haggard, of Nashville, both founders of the Association, who had died during the year. These gentlemen were eminent in their profession, honorable and upright in their private lives, and their death is an irreparable loss to the Association. Speaking of medical societies, he stated that they are the natural outcome of the development of the science and art of medicine and surgery, and for this reason they have multiplied in recent years to fulfill the purpose of discussing propositions bearing on the promotion of more systematic observation and plans of operation, and of greater uniformity in the mode of publishing results, as well as for the consideration of matters on which the co-operation of corresponding societies is desired. To the wonderful development of medicine and surgery during the nineteenth century may be traced the increase of such organizations. Private scientific societies have originated chiefly during the past century, the demand for their existence being due to the necessity of increased organization of rapidly developing knowledge and the desire among workers for a common ground to meet, discuss and compare results and collect facts for future generalization.

With reference to qualifications, the speaker said that there should be some provision of a like kind for special examinations to determine the qualifications of those who desire to enter upon the practice of a specialty, and particularly that of surgery and gynecology. In these days of materialism it would seem out of season to speak of the sentimental aspect of medicine, but medicine has certainly had its sentimental side. The times have changed, and physicians have changed with the times. The demands of modern medicine have to a large extent divested the practice of sentiment that formerly surrounded it. It is a question to what degree specialism has led physicians into the paths and methods of ordinary business. Dr. Simons then discussed the relations of the patient to the doctor, and those of the doctor to the patient, saying that they have changed in conformity to the modernized methods of practice.

Second Day—Afternoon Session.

Results Obtained in Sixty Operations for Prostatic Hypertrophy.

Dr. Hugh H. Young, Baltimore, read a paper on this subject. Stimulated by the work of McGill, Belfield, and others, and having performed prostatectomy in ten cases without a death, the author encountered some cases of prostatic enlargement in very old men which seemed to be entirely beyond the reach of a radical operation. On account of these cases he began a trial of the Bottini operation, and the present paper reporting 60 cases is intended to show a comparison of the two methods, and the results he has secured. These cases were classified as follows: prostatectomies, 15; Bottini operations, 40; miscellaneous operations, castrations, etc., 5; total, 60. Taking the prostatectomies, 12 were suprapubic, and 3 perineal. The ages were 4 between 65 and 67, 2 between 60 and 65, 5 between 55 and 60, 2 between 50 and 55, and 2 between 48 and 50. The condition was fairly good in all but 3 cases. Calculus was present in 5 of the 15 cases, and 6 had led catheter lives. In 7 of the 15 cases the hypertrophy was very large; in 3 it was merely a small pedunculated middle lobe. In 11 cases complete enucleation of the entire prostate was made. In some cases the tumor removed was extremely large. Results: 15 operations, with 2 deaths. Both of these deaths should not have occurred. One patient was undoubtedly septic, had pus kidneys, and should not have been operated until later. In the other case death seemed to have resulted from an infection of the breast after submammary infusion. Of the 13 cases still alive, 12 have gone for periods between six months and three and a half years since operation. Of these 12, 10 may be classed as cured, having no prostatic obstruction, and normal urination. Two are perfectly cured as far as the prostate is concerned, but suffer from cystitis and a contracted bladder, which render urination frequent, though much better than before operation. Taking the Bottini operations, 40 in number, 6 have not been followed. The 34 remaining operations were performed on 31 patients, 3 patients having 2 operations each. The ages were as follows: Over 80, 3 patients; between 75 and 80, 3 patients; all of the above cured. Between 70 and 75, 9 patients; between 65 and 70, 6 patients; between 60 and 65, 6 patients; between 55 and 60, 4 patients. In all, 18 patients over 67 years of age; whereas, among the prostatectomy cases, none were over 67 years of age. Of 15 cases over 70 years of age, all are alive and well.

In discussing the Bottini operation, the author brought out the point that the instrument devised by Freudenberg, while an admirable one, should have more than one blade, so that the operator might have choice as to the depth of cut which should be made in accordance with the size of the prostate. The beak of the instrument is much too sloping, so that several cases have occurred in which the beak has slipped into the urethra and caused dangerous hemorrhage, with sometimes death. In order to correct this and other defects, the author has devised an instrument which, like the Freudenberg instrument, but with four interchangeable blades, can be used according to the case, whether the prostate be large or small. With this instrument he has now performed nine operations, using in those cases all of the blades but one, and can testify to the great service of the ability to use some discretion in the size of the blade that is employed in accordance with the prostatic hypertrophy.

Suprapubic Prostatectomy.

Dr. Floyd W. McRae, Atlanta, followed with a paper on this subject, in which he advocated the early resort to this method of treating enlarged prostate rather than palliative

measures or the seemingly simpler operations of suprapubic fistula, vasectomy, orchidectomy, or the Bottini operation. His reasons were that the seemingly simpler operations are followed by mortality disproportionate to their magnitude; that the relief obtained from them is frequently slight and temporary; that the pathologic conditions were not infrequently aggravated, especially by the Bottini operation. He reported three complete prostatectomies done since May, 1901. The point of originality claimed for the operation is the method of draining. He puts in a retention catheter through the urethra, and closes the bladder and overlying tissues snugly around a parachute drainage tube made out of a soft rubber rectal tube with a single opening at the end, by making four longitudinal slits beginning about one-quarter to three-eighths of an inch from the end of the tube, each slit about an inch long and equidistant from each other, around the circumference of the tube. The four sections are then approximated above and below, by means of a small rubber band put through in the form of a Halsted suture with a large needle. As these sutures are drawn taut, the sections are approximated and the ends flared out somewhat like a parachute. When the bladder is closed, this tube is drawn up so that the flared portion is in firm contact with the anterior bladder wall. The overlying tissues are then closed snugly around the tube and one silkworm-gut suture is put through the tube flush with and through the skin to hold it in position. The flaring of the tube enables the surgeon to draw it firmly against the anterior bladder wall, and by means of the suture put through it and the skin it is prevented from protruding too far into the bladder, avoiding the disagreeable bladder contraction that always takes place if the tube is too long. By this method of drainage the outer ends of the catheter and tube are then put into a urinal which is kept between the legs when the patient is lying on the back, or in front of the thigh when the patient turns from side to side. The advantages claimed for this method of drainage are that the patient is kept absolutely dry and is allowed to turn freely in bed, lying on the back or either side. He reported three operations done by this method since May, 1901, together with a complete pathologic report by Dr. H. F. Harris, pathologist, Atlanta College of Physicians and Surgeons, of the specimens removed. The specimens proved to be "leiomyoma," and "leiomyo-adenoma," with increase of connective tissue as the result of chronic irritation. The irritation noticed in the large specimen evidently followed a Bottini operation done a few months previously, and was associated with phosphatic stone. The patient operated upon in May is now entirely free from bladder irritation, passes a good stream, projecting four and a half to five feet by measurement, when the bladder is moderately distended. Bladder holds, under ordinary conditions, eight ounces by actual measurement, and is capable of holding considerably more. Case 2 is still wearing a McGuire plug, but passes urine readily per urethram. Case 3 is practically well, the suprapubic opening closed, bladder clean, and urine passing freely through the urethra without residue.

Median Perineal Prostatectomy; Total Removal of the Prostate Gland.

DR. ALEXANDER HUGH FERGUSON, Chicago, referred to the work of Nicoll, Alexander, Syms, von Dittel, raising objections to each of the methods followed by those gentlemen. He then proceeded with illustrations and the exhibition of instruments to describe his own operation, which is as follows: "The patient is put to sleep with chloroform, and placed in the extra-lithotomy position. The prostatic depressor is inserted into the bladder through the urethra, and handed over to a trusty assistant. A sponge is pushed into the rectum to prevent the escape of liquid feces. The middle finger of the left gloved hand is then introduced into the rectum and pressed against the urethra at the junction of the membranous and prostatic portions; a long narrow-bladed knife is passed into the perineum through the raphe in the median line, two inches in front of the anus, until it reaches near to the tip of the finger in the rectum, and with one stroke all the structures are cut through to the prostate, without injury to the urethra, prostate, rectum, or anal sphincter. The surgeon should refrain from doing this in his first cases. The skin incision is now enlarged, if necessary, for the introduction of two fingers. Place suitable retractors, one on each side, into the wound, and by blunt dissection expose the prostate, and with the depressor in the bladder it is forced into the perineal wound. Open the capsule with knife or scissors in a transverse direction sufficiently to admit one or two fingers. Place the retractors within the capsule. This is important because traction made on them drags the gland still farther into the wound and holds it firmly while enucleation and extirpation are being performed. It is experienced that by traction from below and depression from above the prostate is fixed, within easy reach, for its entire removal. Enucleate with the finger and bite away the portions thus liberated with the prostatic forceps, until by piecemeal the prostatectomy is completed. No effort is made to save the posterior portion of the prostatic urethra. Indeed, injury to it can not be avoided when the entire gland is removed. While morcellement is in progress, it is advantageous to advance the retractors within the capsule, and introduce the middle finger into the bladder. The forceps can be rapidly thrust between the two fingers to the object to be removed by them, without any danger to the surrounding structures, for when the instrument is closed, its end is perfectly smooth and round. The lateral lobes can be reached to any extent without damaging the mucous membrane of the bladder, and prostatic projections of the middle lobe into the bladder are detected and removed without difficulty. Flush out the bladder very thoroughly with a weak antiseptic solution. A large stream of water must be used, for the ordinary irrigating toy generally used only does harm. Mop out with gauze any water that is in the bladder and wound, and introduce a drainage tube, surrounded with iodoform gauze, through the wound into the bladder. A couple of horsehair stitches closes the part of the skin wound not occupied by the tube, and at the same time prevent the gauze from coming out too soon. Remove the sponge from the rectum, place a comfortably firm dressing over the perineum, and let it be held by a T bandage. Now, attach a long rubber tube to the external end of the drainage tube, and the toilet of the operation is finished. If the patient's urine has been scanty or should he show depression or shock, then it is better to introduce two or three pints of normal salt solution, at a temperature not less than 115 F., beneath the skin, while he is still in the operating room, than to wait until he is taken to his bed."

(To be continued.)

SAN FRANCISCO ACADEMY OF MEDICINE.

Regular Meeting, held Oct. 22, 1901.

Dr. D. W. Montgomery in the Chair.

Epithelioma of the Upper Lip.

DR. D. W. MONTGOMERY presented a case in a man 62 years of age, who first consulted him November 8. His family and personal history were good. Fifteen years ago a growth had appeared on the vermilion border of the right side of the upper lip, where was now a scar. This scar, which was pliable, soft, and healthy-looking, lay a couple of lines from the right angle of the mouth, and was the result of an operation for the removal of the above-mentioned growth, about eight years ago. Soon after the removal of this growth, another appeared on the vermilion border of the left side of the lip, where there was now an immense ulcerated patch with raised rolled borders and deep induration. Within the upper border of this ulcer there was a large cutaneous horn which was of comparatively recent growth, and did not precede the ulcerated surface. Within the last two or three years another growth had appeared on the vermilion border of the upper lip to the right of the median line, but well removed from the above-mentioned scar. This growth, previous to commencing treatment, was oval, well circumscribed, raised, indurated and had a surface dotted with milky spots. Neither of the growths on the upper lip were either painful or particularly tender. The patient was

This treatment had already had a marked effect on the smaller growth to the right of the median line which was flattened out and looked much better. He thought the larger ulcer was also improved, but not so markedly as the growth to the right of the median line.

Congenital Dislocation of the Hip.

DR. H. M. SHERMAN presented a case in a boy. In 1897 he had reported some 15 cases of bloodless reposition of congenital dislocation of the hip, but that, of the whole, only two had remained in place. The boy presented was one of the two, and he had a practically normal hip, though not an anatomically normal joint. The manipulation was in most particulars that of Lorenz. The leg had been lame and the joint stiff for some months after the operation, but had gradually improved. Curiously the leg of the dislocated side was now longer than its mate by 1.75 cm.

Bone Filling with Amalgam.

DR. J. HENRY BARBAT reported a case. The patient's trouble began in 1886 with pain in the left ankle followed by ulceration and the gradual breaking down of a portion of the shaft of the tibia, which he operated upon in 1898 by removing all diseased bone, but the result was not successful, and he sought relief from the author in September, 1899, who found after curetting thoroughly that he had a cavity measuring nearly 5 cm. long, over 2 wide, and fully 3 deep. After the cavity was thoroughly cleaned out and dried copper amalgam was pressed against the bottom and sides until the whole surface was covered, leaving a hole which was partly filled with dental cement, the top being covered with more amalgam. The cement was used to lessen the weight of the filling and was completely covered with amalgam. The skin was sewed over the filling and dressings applied. The immediate results following this were very good, the pain ceasing and the patient being able to walk around without crutches for the first time in several months. The wound did not completely close, however, and in August, 1900, the amalgam was removed and the bone found in good condition, except at the upper end of the cavity, which was curetted and the cavity filled with formalin gelatin, and after one month it showed a clean, healthy granulating surface, into which the skin had dipped down until the cavity has been covered entirely with new skin and the patient was discharged cured in January of this year.

Removal of Tongue, with Result.

DR. E. RIXFORD presented a case as an example of remote result after excision of the tongue. The patient at the age of about 42 came to Cooper College Clinic in the summer of 1900 with a typical epithelioma of the tongue. Operation was advised, but he put it off for some time. He finally came back and the doctor removed the left half of the tongue back as far as the fauces. Recurrence took place, and on March 17 last he removed the entire tongue by Kocher's method, opening the neck on both sides to remove enlarged glands and to tie the lingual arteries at their origins. Some of the glands showed metastases, but many others showed only inflammatory enlargement. He performed a tracheotomy on acount of the deep dissection and the embarrassment to breathing. The patient took the tube out himself on the fourth day and left the hospital on the seventh and went home. He was rather ingenious in the manner of taking food, but was obliged to confine himself to liquids. He took a quantity into the mouth and then throwing his head back was able to swallow it. His general health was good and he had no pain, and no evidence thus far of recurrence. He talked rather well, having learned to substitute labial for lingual mutes. The tongue was removed at the hyoid bone, leaving the epiglottis. The floor of the mouth was rather interesting, owing to the form of the cicatrix. The tumor was atypical squamous epithelioma of the tongue.

Gallstones, with Gangrenous Intestine.

DR. RIXFORD also reported the following case: A large man, 53 years of age, weighing 225 pounds, had had more or less trouble in the abdomen for eight years; three years ago he had a very severe attack of gallstone colic in which he passed a number of stones. Since then he had had more or less pretty continuous pain in the abdomen just below the xyphoid. One morning he had sudden pain below the umbilicus, so severe as to cause him to take considerable doses of morphin. He had no chill, but vomited after taking the morphin; pulse 90, temperature 99. Next day pulse was 100, and temperature 100; spasm of abdominal muscles especially in region of appendix; local tenderness very great. The third day, pulse was 120, and temperature 100 in the morning, 128 and 100.5 in the evening. On fourth morning pulse was 144 and temperature 100. He was brought to the hospital and prepared for operation. Examination showed great tenderness over lower half of the abdomen, more on the right side, leucocytosis 11,400, expression anxious and indicative of great suffering. There was apparently peritonitis most likely from the appendix, though jaundice was present and there was a history of gallstones. There was complete obstruction of the bowels, there having been no passage of feces or even of gas since the onset of the pain, three days previously. Under anesthesia the abdomen bulged noticeably on the right side, and a definite tumor could be felt in this region. Incision in the right semilunar line showed a loop of the small intestine gangrenous for ten or twelve inches, the gut being deeply congested for perhaps a foot on either side. This condition of the bowel could not have been produced by any hernia or internal strangulation, but only by obstruction to the blood supply, probably the superior mesenteric artery. The gall-bladder contained a number of calculi. In order to remove the piece of intestine, the mesentery was cut across—it did not bleed opposite the gangrenous portion—and the loop of bowel was simply hung out of the wound in the dressings in the expectation of removing it as soon as adhesions had made the peritoneal cavity safe, and the remainder of the wound was closed. This course was chosen in preference to a resection of the bowel, because in the first place the patient was in poor condition to endure a longer operation, and secondly, because there was no line of demarcation between sound and diseased intestine. The intestine was removed in 24 hours and an attempt made to wash out the ends of the intestine with salt solution, and a pint or more of strong solution of magnesium sulphate was injected into distal and proximal ends with the result of removing from the proximal end a quantity of fluid feces. Soon after the patient rapidly sank and died. The autopsy made by Dr. Ophuls accounted for all the symptoms and showed the reasons for difficulty in this diagnosis, and that the prognosis was necessarily unfavorable.

The case was of particular interest because of the condition of the intestine, which was shown to be due to thrombosis not of the mesenteric artery, but of a principal radical of the portal vein.

CHICAGO MEDICAL SOCIETY.

Regular Meeting, held Oct. 23, 1901.

President, Dr. Christian Fenger, in the Chair.

Trional Fatalities.

DRS. ARCHIBALD CHURCH and E. B. HUTCHINSON contributed a joint paper on this subject. The authors detailed an interesting case of trional poisoning, which terminated fatally.

DR. CHURCH stated, in discussion, that nearly twenty cases of death from this drug, administered in so-called medicinal doses, could be found in recent periodical literature; yet one of the most recent text-books on therapeutics states that trional may be given in doses up to 60 grains in twenty-four hours. In none of the cases that have terminated fatally has more than 30 grains within twenty-four hours been administered. Death followed the administration of 20 grains of trional in one case in two doses. In the case reported by them, the dosage never exceeded 30 grains within twenty-four hours. He is not using trional so frequently since this unfortunate experience.

DR. HAROLD N. MOYER thought trional was less toxic than sulphonal, which is markedly toxic. He mentioned one case

of sulphonal poisoning that recovered. The majority of cases of sulphonal and trional poisoning that have presented hematoporphyrin in the urine in considerable quantities, have died. There is no question as to the grave toxemias that result from the use of these drugs. The reports of fatalities are sufficiently numerous to warrant him in his own practice in not using trional or sulphonal as hypnotics, and he has not employed them for more than a year and a half.

DR. SANGER BROWN said he had given trional, sulphonal, phenacetin, and that order of drugs a thorough trial, but was soon convinced that they were far inferior to chloral, hyoscyamus, hyoscin, etc., and he had adhered to the latter.

DR. A. W. BAER expressed the hope that the members would look over the death certificates and find out how many people have been killed by taking the coal-tar products.

Colpeurynter in Obstetric Practice.

DR. JOSEPH B. DE LEE said that Carl Braun in 1851 invented the colpeurynter, though hollow tampons, usually pig's bladders, had been used before this by Chiari, Stein and others. Grenser modified Braun's bag, and many others have been devised. Up to 1883 the bags were put in the vagina, then Schauta recommended them for the uterus. Then in 1887 Maurer recommended that traction be put on the tube so as to exert pressure on the cervix from within. The mode of application is simple: After careful antisepsis the bag is filled with sterile water or antiseptic solution, all air gotten out, the bag then emptied, folded into a narrow roll, inserted in the vagina or uterus, and filled with a Davidson syringe; traction is applied or not as indicated.

Indications.—1. Induction of premature labor; claimed to be safer and surer than others; has been used with success by writer in contracted pelves, placenta previa, eclampsia, nephritis, hyperemesis. 2. To hasten delivery, as in eclampsia, premature detachment of placenta, heart disease, etc. It evokes pains, softens the cervix, dilates same gently and firmly from above and makes delivery possible in a short time. 3. To prepare the parts for rapid delivery, e. g., after symphysiotomy, version, or before forceps deliveries in primiparæ, thus the child is like a second twin and the birth is rapid and without injury to the parts. 4. Stenosis and rigidity of the cervix, vagina and perineum. 5. Weak pains; if a cause can not be found, or is not removable, the bags are of real service in evoking strong contractions. Almost always weak pains are a symptom of some underlying cause: 6. In "dry labors" the bag, put inside the uterus, replaces the bag of waters almost perfectly, and may save many hours of labor. 7. In transverse presentation to keep the shoulder from wedging into the pelvis while waiting to be able to do version, and in contracted pelvis for the same purpose, the metreurynter is valuable. 8. When the cord prolapses with the head it may be pushed as high as possible into the uterus and the cervix stopped with a rubber bag. The writer suggests putting a stout drainage tube alongside the cord to save it from pressure. 9. During pregnancy, to lift up a heavy uterus causing hyperemesis, and to replace a retroflexed, incarcerated uterus, filling the colpeurynter with water or mercury. 10. In placenta previa; perhaps the most valuable of all.

Maurer in 1887 used intra-uterine colpeurysis, with traction, and drew attention to the value of the procedure. Dührssen put it on a scientific basis. Bag is placed inside uterus, on fetal surface of placenta and constant traction made on tube. The hemorrhage is stopped by the pressure of the placenta against the open sinuses, pains are evoked, the cervix is dilated gently and evenly, and time is given to rally the patient from collapse, to send for counsel and help. When the bag is passing through the cervix, all preparations are made for delivery, for version, etc. As soon as the bag has passed the external os, which is easily determinable, it is rapidly drawn through the vulva and further procedure instituted, which may take the form of forceps, version, another bag, or perhaps even expectancy. The writer is convinced that extended use of the metreurynter in placenta previa will reduce maternal and fetal mortality to about almost nothing.

Anterior Vertex Presentations; Their Complications and Treatment.

DR. GUSTAV KOLISCHER called anterior vertex presentations those presentations in which the fetal head passes through the pelvis slightly deflected, so that the anterior part of the cranium represents the lowest point of the skull. In cases of pendulous abdomen, where the fetus is the possessor of a struma, anterior vertex presentations are most likely to occur. Some authors claim that uniformly round heads, especially combined with a flat or uniformly contracted maternal pelvis, furnish the majority of these presentations. By means of external examination the resistance, which is formed by the fetal back, is closer to the median line, and not quite as distinct as in normal occipital presentations. Should the anterior vertex presentation persist for any length of time, the elongation of the occiput can be palpated through the abdomen. Internal examination shows that the anterior and posterior fontanelles are on the same level, or that the large fontanelle is even lower situated than the small one. If the head has just passed the pelvic brim, the sagittal suture is encountered toward the promontory, and just behind the symphysis we find an ear or the squamous suture. If the head has descended into the median plane of the pelvis, we find the sagittal suture in one of the oblique diameters, while both fontanelles are still located in the same plane. If normal rotation (occipito-anterior) has taken place in an anterior vertex presentation, the small fontanelle is found just beneath the symphysis, while the large fontanelle can be very easily reached in the perineal region. This is due to the deflection in which the fetal head is held.

If abnormal occipito-posterior rotation takes place in cases of anterior vertex presentation, the glabella rests against the symphysis, while both fontanelles are easily accessible. In cases of occipito-posterior rotation and normally flected head, the large fontanelle lies beneath the symphysis. Once in a while, if the entire fetus is in an oblique position, the small fontanelle can be located higher up than the large one, although the head is kept in normal flexion. In such cases the differential diagnosis could be made by careful and exact external examination, which will reveal the presence of an oblique position of the fetus. As to the frequency of anterior vertex presentation, comparative statistics from recent sources show that it occurs in about eight per cent. of all head presentations.

The descent of the abnormal presentation may vary: Either the head in descending becomes inflected and rotates normally, or it descends to the pelvic floor in a deflected attitude, in which case either normal or abnormal rotation may occur, or the complete descent of the head becomes checked by oblique or transverse presentation. Of course, if normal flexion and rotation occur, the ultimate delivery will in no way differ from any other normal occipital presentation. But if the deflection is not corrected, the passage of the head through the pelvic outlet will be more difficult. If in a deflected attitude of the head the occiput rotates anteriorly, the occipital tuber rests against the pubic arch, and constitutes the point around which the head has to roll in order to pass through the outlet. Thus, the head passes with a larger diameter through the outlet as in normal cases. If occipito-posterior rotation takes place, the glabella rests against the symphysis, and the extrication of the head will be more difficult because it has to be performed from a deflected attitude. Furthermore, we must consider the fact that, as in all cases of deflection, the occiput is elongated, so that the mento-occipital diameter becomes considerably enlarged, thus increasing the difficulty in delivering the head. If an anterior vertex presentation terminates in an oblique or transverse presentation, the whole affair takes on a more serious aspect in primiparæ, and in cases of slightly contracted pelvis, a transverse presentation of the head will, as a rule, not be overcome by the natural forces, even if the head should be normally inflected. One of the above-mentioned presentations, combined with anterior vertex presentation, may be considered an absolute obstacle to spontaneous delivery in primiparæ. The author dwelt at length upon the complica-

tions connected with the class of presentations under discussion.

In all cases of forceps operations in anterior vertex presentation, he thinks the Walcher's posture can be used to great advantage. On account of the unfavorable diameter in which a deflected head has to pass through the vulva, and on account of the enlargement of the mento-occipital diameter, the perineum is always in great danger, and episiotomy has quite frequently been resorted to.

Occipito-Posterior Positions; Their Diagnosis and Treatment.

Dr. Charles E. Paddock stated that a proper appreciation of presentation and position of the fetus in the latter part of pregnancy or the beginning of labor is as necessary as it is to make a diagnosis in any branch of medicine. That this fact is not deemed of sufficient importance is proven by the number of neglected cases which are daily brought to the hospitals or come under the care of the consulting obstetrician. Occasionally the position can not be definitely determined, but such cases are very rare. Familiarity with abdominal palpation will soon place the physician in a position where it will not be necessary for him to be in doubt. The internal examination is hardly necessary to confirm the position or presentation, and unless the os be dilated it amounts to very little, as a rule.

The advantage of making a correct diagnosis of the position of the child in utero is necessary to the correct treatment of the case, and in vertex presentations, when the head is about to engage posteriorly, or has already done so, the condition should be considered pathologic, and the diagnosis should be made early. We have sufficient clinical evidence to establish this fact, and while cases where the occiput is in one of the posterior quadrants of the pelvis, or gravitating that way, are not desirable ones, the author feels that much can be done to correct this position, and thus shorten the labor, alleviate suffering, and lessen the fetal mortality. Authorities differ regarding the relative frequency of the different positions of the vertex, but most agree that the occiput engages in right oblique to a large extent, about 30 per cent. of the cases being occipital right posterior, and about 4 per cent. of this 30 per cent. failing to rotate anteriorly and engaging in the hollow of the sacrum. According to Naegele, who has probably given this subject more attention than anyone else, the head lies in the right oblique in 99 per cent. of all cases. Admitting the frequency of the occiput occupying a posterior position, and knowing the dangers which may result before the case has terminated, it has been the author's experience that the head does not engage as easily in this position as in the anterior one. In O. L. A., for instance, the head enters the pelvis with both parietal bones on the same level, that is, the biparietal diameter of the head passes through a pelvic diameter parallel with and about equal to one of the large oblique diameters. In O. R. P. position, however, this does not occur, and the head passes through a much smaller diameter.

While it may not be possible to correct every case by posture, the number of successful ones is so large that every case diagnosed as O. D. P. before labor should be treated as follows: Caution the woman to lie upon her right side at night, and at all times when she is lying down. Each night and morning she should assume the knee-chest position for ten minutes. If the head be above the brim, in but very few cases will this treatment fail. In this position the anterior wall will be lower, the fetus rotating on its long axis, and the dorsum, being the heavier, naturally will seek the most dependent part of the uterus. The knee-chest position allows the head to settle away from the brim. In taking this position, the abdomen must be entirely free of tight clothing. Take another case, when the diagnosis has been made after labor has commenced, but the head still above the brim, the same treatment is often beneficial. The object of position in these cases is not only that anterior rotation may be favored, but a more perfect flexion of the head may be maintained. If flexion is not secured, we have the sinciputal end nearly on a level with the occiput; entering the pelvis in this way, labor is delayed, and when the head settles down, the sinciput coming in contact with the pelvic floor rotates forward and the occiput engages in the hollow of the sacrum, or we get a deep transverse in arrest which calls for artificial correction. While we speak of the occiput rotating posteriorly, we probably should say the sinciput rotates anteriorly. Hart's law: Whatever position of the fetal body first strikes the resistance of the pelvic floor, whether it encounters this structure behind or in front of the median transverse line it is directed forward, inward and downward under the arch of the symphysis. When the occiput is engaging slowly and the lateroprone position has failed, often much good will result by placing the patient in the Walcher position.

There is still another class of cases where the head has engaged in the brim, the os dilated, but no progress being made. In this class the treatment to be first attempted is one which will nearly always succeed. To illustrate, he reported a case seen by him in consultation during the past week. Mrs. M., white; iv-para; previous labors normal, in labor at term. Labor had progressed for twelve hours, with os fully dilated, membranes ruptured, and head wedged into brim. Forceps delivery had been attempted. In making an examination per vaginam he found the large fontanelle almost on a line with the small one; in other words, the head was not flexed. He continued pressure with his two fingers upon the sinciputal end, and after two pains only, he had the satisfaction of feeling the sinciput recede, and the occiput descend. Labor terminated in one-half hour.

In recapitulation, the author said that: 1, a proper diagnosis of position and presentation should be made early; 2, that occipito-posterior positions are frequent; that these positions result in a great fetal mortality and maternal morbidity; 3, that this position can be corrected and labor shortened.

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment will be answered in these columns.]

Prescription Writing—Continued.

III. Nouns of the fourth declension, as previously stated, have the ending *us* and do not change in the genitive. Practically the only noun of the fourth declension in common use is "spiritus."

Referring again to our prescription, the directions to the druggist it will be noticed are written in the Latin. The word *misce* means, when translated, "mix thou." The word *fiat*—meaning "may be made"—is in the subjunctive mood, therefore, in the above, *mistura* is in the nominative case the subject of *fiat*. If a number of capsules were ordered instead of a mixture then *fiat* would have to be changed from the singular to the plural, as follows: *fiant capsulæ*, capsulæ being in the nominative case, plural, the subject of fiant.

The directions to the patient are of extreme importance, and this is where the physician should express himself concisely, clearly and positively. It should be stated how the medicine should be taken; that is, whether in water or otherwise, and whether the water should be hot or cold when the medicine is poured into it. For instance, we know that sulphonal, to produce the best results and promptly, should be dissolved in hot water, while if chloralamid is dissolved in hot water it is easily decomposed. It should also be stated definitely whether the drug should be given before meals or after meals on account of the liability of producing a gastritis, or whether it should be given at night or in the morning. We know that it usually takes from twelve to twenty hours for the lapactic pill to act and consequently it is better to give it upon retiring, while magnesium sulphate will produce much better effects if given upon rising in the morning with the patient in the upright position. We urge the physician to be positive with patients as to the promptness of taking the medicine. If it is a matter of indifference to the physician

it will soon be of greater indifference to the patient. In writing out the ingredients it is much better to write them in full and not abbreviate. In this way mistakes upon the part of the druggist will be obviated. While there can be no objections in abbreviating some of the terms, a few illustrations taken from Wilcox may serve to show how mistakes may arise:

Acid. hydroc. (may be Acidum hydrochloricum or Acidum hydrocyanicum).

Ext. col. (may be Extractum colchici or Extractum colocynthidis).

Hyd. chlor. (may be Hydrargyrum, Hydras, Hydrochloras or Hydrocyanicus).

Sulph. (may be Sulphur, Sulphid, Sulphate, or Sulphite).

In this connection it does not come amiss to mention the importance of writing plainly and legibly. More than one case is on record where suits have been instituted against druggists for improperly compounding a prescription, who in turn tries to shield himself behind the hieroglyphics of the physician. A physician of prominence in a large city, who writes an unusual number of prescriptions, has the reputation of writing so illegibly that only one druggist in the entire city dares to attempt to compound the prescription, and even he at times has to inform the patient that it will take some time to fill the prescription in order that he may quietly consult this physician concerning the ingredients involved.

Eczema.

When eczema is present dependent on digestive disturbances, with constipations, etc., present, Stelwagon in *Amer. Text-Book of Ther.*, recommends the following in conjunction with local applications:

℞. Magnesii sulphatis ..... ℥i .32
Acidi sulphurici dil ..... ℥ii 8
Ferri sulphatis ..... gr. vi 36
Aq. menthæ pip. q. s. ad ..... ℥vi 192

M. Sig.: One tablespoonful is to be taken in a glass of water one-half hour before breakfast and if necessary upon retiring at night.

In some cases he advises the addition of sulphur in proportion of drams 4 (16.) to the 6 ounces (192.) to the above mixture to increase its activity.

The following saline mixture is also of service for the same purpose:

℞. Sodii sulph. gran. 3x 40
Sodii bicarb ..... ℥iv 16
Sodii chloridi ..... ℥ii 8

M. Sig.: Keep well closed, take one or two teaspoonfuls dissolved in a glass of water one-half hour before breakfast.

He further states that many patients can not properly bear the salines and under such circumstances he advises the following as a stomachic laxative tonic:

℞. Sodii salicylatis ..... ℥ii 8
Ext. rhamni purshianæ flu ..... ℥iss 6
Tinct. nucis vom ..... ℥iv 16
Tinct. card. comp. q. s. ad ..... ℥iii 96

M. Sig.: One teaspoonful to be taken after each meal in water.

For local medication to the skin, lotions, oils, ointments, paints or plasters may be used. He states that the most useful preparations are those containing zinc oxid, talc, boric acid and starch, combined sometimes with salicylic acid, carbolic acid or camphor. He recommends sometimes for such local application, the following:

℞. Acidi salicylici ..... gr. ii-v 12-30
Acidi borici ..... ℥ii 8
Zinci oxidi .....
Talci veneti, āā ..... ℥iii 12

M. Sig.: Cleanse the parts well with water and apply locally once or twice a day.

The following is used as a lotion in the erythematous and papular varieties:

℞. Acidi borici ..... ℥ii 8
Acidi carbol ..... ℥ss-i 2-4
Glycerini ..... ℥ss 2
Alcoholis ..... ℥ss 2
Aquæ q. s. ad ..... Oss 256

M. Sig.: Apply locally twice a day.

Or:

℞. Calaminæ
Zinci oxidi, āā ..... ℥iss-ii 6-8
Glycerini ..... ℥ss 2
Alcoholis ..... ℥ss 2
Liquoris calcis ..... ℥ii 64
Aquæ q. s. ad ..... Oss 256

M. Sig.: Apply locally.

If the itching is too troublesome, from one-half to one dram (2.-4) of carbolic acid may be added to the above or grains 2 to 8 (.13-.15) of thymol.

Treatment of Acute Rhinitis.

This is the time of year when a great many patients complain of inability to breathe through one or both sides of the nose or perhaps one side is closed only to become free when the other side becomes closed. In such cases the indications are to decrease the congestion and consequently the size of the turbinated bodies. In such cases the following is used a great deal internalls:

℞. Quininæ sulphatis
Sodii salicylatis, āā ..... gr. iii-iv 20-25
Camphoræ monobromatæ ..... gr. ss 03

M. Ft. capsula No. 1. Sig.: One such to be taken four or five times a day.

To soothe the inflamed Schneiderian membrane Mackenzie recommends the following in the form of an inhalation:

℞. Tinct. opii camph. ..... ℥ss 16
Tinct. benzoini co ..... ℥i 32

M. Sig.: Put one teaspoonful to the pint of hot water and use as an inhalation three times a day.

The temperature should be raised to near the boiling point and the vapor inhaled for fifteen minutes at a time, six deep inspirations being made in each minute.

We might again state the efficiency of adrenalin to relieve the local congestion.

Treatment of Hemorrhoids by Zinc Chlorid.

The following is recommended by Julie, as noted in *Am. Medicine*. The parts should be thoroughly washed and an ointment of iodoform and vaselin applied to the hemorrhoidal mass; 15 minims of the following solution is then injected into the base of the mass:

℞. Zinci chloridi ..... gr. viiss 5
Cocainæ hydrochlor ..... gr. iii 20
Aq. destil ..... ℥v 20

M. Sig.: Use as advised above.

He states that patients do not complain of the pain, but the next day a slight inflammatory nodule is produced which disappears on the fourth or sixth day. He does not believe that thromboses are liable to occur, especially if care is taken when making the injections to distribute the liquid.

Tracheo-bronchitis in Children.

The following is recommended by Markan, in *Med. Press and Circular*, in cases in which irritation and cough is proportionately greater than the inflammation:

℞. Syr. aurantii (flores)
Syr. codeinæ, āā ..... ℥i 32
Tinct. aconiti ..... m. xii 75
Aquæ ..... ℥ii 64

M. Sig.: One teaspoonful daily for a child of three months, to be increased according to the age of the child.

Treatment of Acute Albuminuria After Scarlet Fever.

The following is recommended by Otto Maier, in the *Post-Graduate*:

℞. Pilocarpinæ hydrochlor. ..... gr. i 06
Infusi digitalis ..... ℥iii 96

M. Sig.: One teaspoonful every three hours.

He also recommends that a hot bath be given daily and a diet consisting of milk and ice cream. To promote elimination by the bowels give the following:

℞. Hydrarg. chloridi mitis ..... gr. iiss 15
Pulv. jalapæ ..... gr. ivss 28

M. Ft. chart. No. i. Sig.: One such to be taken twice a week.

Treatment of Acute Articular Rheumatism by Massage with Petroleum.

Sarafidis, as noted in *Amer. Medicine*, states that he has cured fifty cases of acute articular rheumatism by massage of the extremities with petroleum. Either crude petroleum or the ordinary oil may be used. Massage should be carried on in the direction of the venous circulation and practiced for ten minutes daily. If erythematous papules should appear, discontinue the treatment for a day or two. He claims to have perfected cures in five to seven days, and that by this method the temperature is lowered and the serous membranes thus protected from inflammation. No cardiac or visceral complications have been observed; the treatment can be carried on in the presence of an interstitial nephritis, under which circumstances sodium salicylate would be contra-indicated. The same holds true of its administration to pregnant women.

Medicolegal.

Three Hundred Dollars for Injury to Knee.—The Supreme Court of California holds, in the personal injury case of Sheyer vs. Lowell, that not only was an award of damages of $300 clearly not excessive, where the party suing was laid up with a badly injured knee and under the constant care of physicians for two months, and at the time of the trial, nearly a year later, had not entirely recovered, but that the evidence would have supported a verdict for damages greater than $300.

Medical Examiner a General Agent—Fraud of.—The Supreme Court of Tennessee says, in the case of Bennett vs. the Massachusetts Mutual Life Insurance Company, that it is true that the medical examiner of a life insurance company is not a general agent of the company in the broad sense of the term, but one whose duties are confined to a single feature or department of the business, but in that department he is a general agent. Then, it holds that the insured may maintain an action to have the contract of insurance rescinded, and to recover the premiums which he has paid, on the discovery that the answers made in the application are not true, and are not as made by him, but were fraudulently made by the examiner, where in case of the death of the insured the company would have a prima facie case for avoiding the policy for such false statements and it would be hard for others to show the fraud. In such a case, oral evidence, it holds, is competent to establish the fraud, and admissible to show that the contract as written is not the contract as made by the parties. It also suggests that, whatever may be the rights of third persons growing out of the matter, it will not lie in the mouth of the company upon the one hand to confess its fraud, and on the other to say that, "You are estopped to rely upon that fraud, because you have not more promptly discovered it."

Right to Have Hand Examined by Physicians.—In Louisville & Nashville Railroad Company vs. Simpson, where the Court of Appeals of Kentucky has reversed a judgment for damages against the company, the party who brought the action claimed that her hand had been injured in a collision, and that she was permanently crippled; that because of the injury she could not close two or more of the fingers of that hand by voluntary exercise of its muscles. No other permanent injury was claimed, nor was the injury to that member apparent to an ocular inspection. On the trial she showed the hand to the jury, demonstrating she claimed how far she could close the fingers by the use of their muscles. She declared that the leaders and joints of the fingers were stiff and enlarged. One of her witnesses (her physician) testified that he could not tell by an examination of the hand whether it was permanently injured or not; that he would have to rely upon the statement of the patient. She submitted her hand to his examination while he was testifying. Subsequently the company introduced two physicians as witnesses, who testified that they could tell by an examination of the hand, without reference to what the patient said, whether it was stiffened as claimed, and whether such injury was permanent. But she declined to permit the witnesses to examine her hand, and the trial judge overruled a motion to compel her to do so. The Court of Appeals holds that this was reversible error. It says that to permit the party suing to testify that the member was injured and that the injury was permanent, and to deny other competent witnesses, who were especially skilled in treating such injuries, an opportunity to examine the hand and to demonstrate, if they could, that it was not in fact injured at all, was an abuse of the discretion lodged with the trial judge.

Malpractice Liability for Negligence in Amputation.—The Court of Appeals of Kentucky says that it appeared, in Alexander vs. Menefee, that it was necessary to amputate some distance from the wrist the arm in question, the wrist having been broken by a discharge from a shotgun. The complaint, in substance, was that the physician who was employed to treat the arm performed the operation without the assistance of another surgeon or physician to aid in administering anesthetics, as a result of which the party suffered much during the operation, and did not remain quiet or unconscious, and thereby the operation was not performed as it should have been; that one of the arm bones was cut shorter than the other, which prevented healing of the wound, and rendered it impossible for the flesh to cover the bone in such a manner as to heal. Other defects and unskilful actions were alleged, the result of which, it was alleged, caused the arm to remain sore, and caused the bones to protrude through the skin and become entirely uncovered, and would cause the bones to decompose; that it would be necessary to have the arm resected, etc. The answer was a complete traverse of all the averments in the petition which showed a right to recover damages. The trial resulted in a verdict and judgment for $1500 damages against the physician, which the Court of Appeals of Kentucky affirms. It deems it unnecessary to recite the evidence introduced, and says that, as the jury had the witnesses before them, as well as an opportunity to view the condition of the arm, it is not, therefore, disposed to hold that the verdict of the jury was contrary to law, or not sustained by sufficient evidence. Nor is it inclined to the opinion that there was any error in refusing to permit the physician, who was a competent and skilful physician and surgeon, there being no claim that he was not such, while, instead, it was substantially alleged, or at least the action was prosecuted upon that idea, and the recovery was sought, not upon the ground of incompetency, but upon the ground of negligence. Furthermore, the court says that there was proof tending to show, and from which the jury was authorized to conclude, that the treatment was not such as a reasonably careful physician in that neighborhood ought to have given.

Liability for Injury to Pregnant Passenger.—The Court of Civil Appeals of Texas, in St. Louis Southwestern Railway Company of Texas vs. Ferguson, affirms a judgment for $1000 damages in favor of a husband for injuries alleged to have been negligently inflicted upon his wife by causing an engine or train to collide violently with the car in which she was seated as a passenger, in the making up of a train. At the time she was about six months advanced in pregnancy, and within a few days thereafter gave premature birth to twins. The trial judge instructed the jury that the railway company was not an insurer of the personal safety of the woman while she was a passenger on its train, but owed to her the duty to exercise that high degree of care for her reasonable personal safety which a very prudent person would use under the same circumstances about the same matter; and a failure of the company, if any, to exercise such degree of care, would be negligence. This the company contended was erroneous. As a correction, it asked that a special instruction be given to the effect that it was not intended by the general charge to require of the company to exercise any greater care with reference to this passenger than to any other person; that, there being no evidence to show that the company had notice that she was pregnant, it could not be required to exercise any greater care of her than of an ordinary passenger; and, therefore, that, if the jury found from the evidence that the company exercised the care required of railway companies, in making

up its train, it should find for the company. It was insisted that, without knowledge of the delicate condition of the woman, the degree of care imposed by law upon the railway company was that due to all persons in usual and ordinary physical condition, and not such as might have been due to one "in the light of attending circumstances." But while there was no evidence that the company's servants in charge of the train and cars in question at the time of the coupling complained of had knowledge of the peculiar condition of this passenger, the court nevertheless holds that the judge's charge must be sustained, and that his rejection of the special charge requested was correct. It holds that the judge gave the proper standard of care, and says that the degree of care so prescribed, in its judgment, must be exercised by the carrier of passengers in the light of an imputed, if not actual, knowledge that the aged, the infirm, and those in delicate condition may and do constantly travel on the passenger trains of the country. Humanity is heir to many ills and destructive conditions requiring notice and peculiar care, and those commonly and constantly engaged in their transportation for hire ought not to be heard to say in excuse for their negligence, "We were without notice of the fact."

Current Medical Literature.

Titles marked with an asterisk (*) are noted below.

Philadelphia Medical Journal, November 16.

1 *The Outbreak of Tetanus in St. Louis. A. C. Abbott.
2 *The Present Status of the Bottini Operation as a Method of Treatment in Obstructive Hypertrophy of the Prostate Gland, Derived from a Summary of 888 Operations by 48 Operators. Orville Horwitz.
3 *Bovine Tuberculosis and Milk Supplies. H. L. Russell.
4 *Some Points on Intracranial Neoplasms Considered from the Neuronic Standpoint. F. Savary Pearce.
5 *Neurasthenia. Jay G. Roberts.
6 Surgery of Pulmonary Abscess, Gangrene and Bronchiectases, Following Pneumonia. Daniel N. Eisendrath.

Medical News (N. Y.), November 16.

7 The Making of a Modern Medical School: A Sketch of Rush Medical College. John Edwin Rhodes.
8 *On the Nature of the Process of Fertilization. William J. Gies.
9 Infantile Pleurisy with Effusion. W. T. English.
10 *Tendon and Muscle Transference and Arthrodesis in Infantile Paralysis. E. H. Bradford.
11 The Management of Acute Gonorrhea. Louis Broter.

New York Medical Journal, November 16.

12 An *X*-ray Stereoscope. Louis A. Weigel.
13 *On a Case of Sarcoma Treated by the Roentgen Rays. Carl Beck.
14 *Devitalized-Air Toxemia, a Prime Cause of Tuberculosis. (Concluded.) Charles Denison.
15 *The Lane Lectures on the Social Aspects of Dermatology. Malcolm Morris.
16 Pyopericarditis. Herbert O. Collins.
17 The Daily Medical Inspection of Schools. D. S. Lamb.

Boston Medical and Surgical Journal, November 14.

18 *Medicolegal Examination of Blood Stains. Edward S. Wood.
19 The Correction of Old Lateral Displacements of the Nasal Bones. J. L. Goodale.
20 Cleft Palate. J. S. Stone.

American Medicine (Philadelphia), November 16.

21 *Infection in a General Surgical Sense. Daniel N. Eisendrath.
22 *The Bacteriology of Otitis Media: A Summary of Recorded Observations and a Laboratory Study of 76 Cases. (Concluded.) John Funke.
23 *The Vexed Question of Vaccination; What Is the Best Method of Securing Immunity from Smallpox? Charles Good.
24 Granular Lids. J. G. Huizinga.
25 A Case of Lupus Vulgaris. P. R. Egan.
26 When Should the Oculist Be Consulted? Fred D. Lewis.
27 *The Lane Lectures on the Social Aspects of Dermatology. Malcolm Morris.

Medical Record (N. Y.), November 16.

28 *Pathology and Treatment of Migraine. William H. Thomson.
29 *The Present Position of Ophthalmic Science and Art. D. B. St. John Roosa.
30 *The Official Relation of the Medical Profession to Private Charitable Institutions. Enoch V. Stoddard.
31 Nasal Obstruction and Ear Disease. A. C. Bardes.
32 *Butyric and Acetic Acids in the Contents of the Stomach and Tests for Their Detection. Mark I. Knapp.
33 *Gangrene Following the Use of Carbolic Acid. John G. Sheldon.
34 Food as an Etiological Factor in Disease. George Merriman.

Cincinnati Lancet-Clinic, November 16.

35 Rectal Alimentation and Medication. E. E. Armstrong.
36 *A Study of the Indications and Contra-indications of Heroin. G. W. Wood.
37 Gonorrhea. L. J. O'Brien.

St. Louis Medical Review, November 16.

38 *The Professional Obligation of the Railway Surgeon. Chas. A. Bishop.
38½ Masked Malaria. W. A. Haley.
39 *A Discussion on the Proposed Municipal Legislation in Regard to Tuberculosis. F. A. Glasgow.

Virginia Medical Semi-Monthly (Richmond), October 25.

40 An Operation for Tubal Pregnancy Complicated with Appendicitis and Fibroid Tumors of Uterus. Pugh U. Brown.
41 Three Cases of Cataract Extraction Where Absolute Glaucoma Existed in the Opposite Eye. John Dunn.

Medical Age (Detroit, Mich.), November 10.

42 *Medical Registration in Michigan. B. D. Harison.

Medical Fortnightly (St. Louis), November 11.

43 Minute and Foreign Bodies Superficially Wounding the Eye. A. C. Corr.
44 Rectal and Anal Fistulæ. Carl E. Black.
45 Diseases of the Lungs and Pleura. (Continued.) Albert Abrams.
46 Diagnosis in Diseases of Infancy and Childhood. John Zahorsky.

American Practitioner and News (Louisville, Ky.), October 1.

47 *Preputial Divulsion Versus Circumcision in the Young. John B. Enright.
48 The Management and Treatment of Typhoid Fever. G. L. Barr.
49 Opposing the Routine Regimen Adopted in the Management of Chronic Bright's Disease. Leon L. Solomon.

Annals of Surgery (Philadelphia), November.

50 *Genital Tuberculosis, with Special Reference to the Seminal Vesicles. Hugh H. Young.
51 *Cervical Ribs. Frederick Kammerer.
52 Skin-Grafting in the Treatment of Complete Stenosis of the Larynx. Andrew J. McCosh.
53 Anorectal Transplantation. John D. Rushmore.
54 *Acute Intestinal Obstruction Following Appendicitis. Lucius W. Hotchkiss.
55 Foreign Bodies Accidentally Left in the Abdominal Cavity. (Concluded.) August Schachner.

Dominion Medical Monthly (Toronto), October.

56 *A Case of Transplantation of the Ureter for Cure of Uretero-Vaginal Fistula. A. Lapthorn-Smith.
57 Notes on Practice in Midwifery. R. E. McKechnie.
58 Cases in Practice: (a) Lightning Stroke; (b) Three Cases of Nervous Disease in Children. A. F. McKenzie.

New York State Journal of Medicine (N. Y.), November.

59 Intrathoracic New Growths. Alexander Lambert.
60 *Surgical Malposition of the Gall-Bladder. E. D. Ferguson.
61 *Complete Uterine Prolapse. Frederick H. Wiggin.
62 *The Present Status of the Infectious Theory of Malignant Neoplasms. George Blumer.
63 *Prostatic Obstruction to Urination; Notes on Its Remedy by Enucleation of the Diseased Parts. J. W. S. Gouley.
64 *A Reconsideration of the Pathogenesis of Concomitant Strabismus. Alvin A. Hubbell.
65 *Appendiceal Fistula. John B. Deaver.

Archives of Pediatrics (N. Y.), November.

66 *Milk-sugar in Infant-Feeding. A. Jacobi.
67 *Adenoma of Both Adrenals in the Newborn, Associated with Retrogressive Changes in the Adrenals of Marchand. Aldred Scott Warthin.
68 Infantile Scurvy and Marasmus. Francis Huber.
69 An Unusual Case of Spasmus Nutans. Samuel Amberg.
70 A Case of Severe Secondary Anemia in a Child of Two Years. L. E. La Fetra.
71 Report of a Case of So-called Von Jaksch Anemia. Charles Herrman.

Chicago Medical Recorder, November.

72 *The Surgery of Pulmonary Abscess, Gangrene and Bronchiectases, Following Pneumonia. Daniel N. Eisendrath.
73 Gastric Surgery. Carl Beck.
74 *The Open-Air Treatment of Consumption. Homer M. Thomas.
75 Trional Fatalities. Archibald Church and E. B. Hutchinson.
76 Brain Tumor. John A. Robison.
77 The Use of the Colpeurynter in Obstetric Practice. Joseph B. DeLee.
78 Occipito-posterior Positions; Their Diagnosis and Treatment. Charles E. Paddock.

79 Anterior Vertex Presentations; Their Complications and Treatment. Gustav Kolischer.
80 Epidemic Cerebrospinal Meningitis; Meningeal Hemorrhage; Intussusception; Diaphragmatic Hernia. Isaac A. Abt.
81 Congenital Heart Lesion. Wm. J. Butler.

The Physician and Surgeon (Detroit and Ann Arbor, Mich.), September.

82 An Historic Sketch of the Appendix Vermiformis. Robert C. Bourland.
83 Gastroenterostomy and Intestinal Resection. William Fuller.
84 *Modern Methods in Country Practice. Ernest W. Tonkin.
85 Placenta Previa. Samuel K. Smith.
86 Asthenopia—Accommodative and Muscular. Calvin R. Elwood.
87 *Hyperacidity of the Stomach Contents. D. Murray Cowie.
88 Some Remarks on the Pathogenesis and Treatment of Gonorrheal Arthritis. Richard Leuschner.
89 Circular Rupture of the Iris. Ovidus A. Griffin.

Colorado Medical Journal, September.

90 The Problem of the Age Is Life—Development Is Conservation of Energy. B. C. Arbogast.
91 Report of the Committee on History of Medicine in Colorado. C. D. Spivak.
92 Early Surgeons of Colorado. Charles A. Powers.
93 Physiology of the Kidneys. C. B. Van Zant.
94 The Microscopic Examination of Urine in Nephritis. W. H. Bergtold.
95 The Etiology and Pathologic Anatomy of Chronic Nephritis and Amyloid Kidney. J. A. Wilder.
96 The Remote Phenomena Which Would Prompt Us to Look for Disease of the Kidney. J. Tracy Melvin.
97 Etiology, Symptoms and Treatment of Acute Nephritis. H. B. Whitney.
98 Renal Functions and Life Insurance. C. G. Hickey.
99 Report of Three Fatal Cases of Chronic Nephritis, Illustrative of Clinical Types of the Disease; Brief Reference to Treatment. B. B. Frankle.

Medical Dial (Minneapolis), November 1.

100 Psychology of Neurasthenia. Jas. G. Kiernan.
101 Some of the Emergencies of Labor and How to Manage Them. Edward J. Wilson.

Columbus Medical Journal, October.

102 Cystitis. Thomas G. Youmans.
103 Diagnosis of Typhoid Fever. Starling Loving.
104 Treatment of Typhoid Fever. Clovis M. Taylor.

Denver Medical Times, November.

105 Home Treatment of Insanity. Hubert Work.
106 *A Comparative Climatic Study of the Arid and Semitropic Southwest, and Its Relations to Tuberculosis. Wm. Winthrop Betts.
107 *History of the Colorado Fuel and Iron Company's Hospital. R. W. Corwin.

Southern Medical Journal (La Grange, N.C.), October.

108 Acute Intestinal Auto-infection. John M. Batten.
109 Leading Physicians. S. Scruggs.

Medical Council (Philadelphia), November.

110 Disorders of the Sexual Function in Man. A. H. P. Leuf.
111 Winter Diseases. T. H. Line.
112 Carbolic Acid in Surgical Cases. C. Kendrick.
113 A Teratism of the Acephalic Variety. D. S. Hanson.
114 *Somnambulism. Herman Gasser.
115 *Unjust Food Laws. G. M. Randall.
116 Hydrophobia; Its Symptoms and Treatment. William Alexander Armstrong.

Medical Times (N. Y.), November.

117 A Systematized History of the Insane for Sixty Years. J. Howe Adams.
118 The Lesser Known Signs and Symptoms of Aortic Aneurysm; with Their Treatment. M. E. Fitch.
119 Hysteria in Children. William Wormley.
120 The Management of the Puerperal State. R. O. Tucker.
121 Bullous Urticaria. P. F. Barbour.

American Medical Compend (Toledo, Ohio), November.

122 *Why Is the Present Epidemic of Smallpox Likely to Continue? W. C. Chapman.
123 Rectal Reflex Neuroses. William M. Beach.
124 The Relation of the Echinococcus to Hydatids. D. E. Haag.
125 Intestinal Hemorrhage in Typhoid Fever Controlled by the Use of Adrenalin Chlorid Solution. Geo. S. Williams.
126 Reflex Neurosis from Disturbed Pelvic Mechanism. Byron Robinson.
127 *Postpartum Hemorrhage. H. M. Jump.
128 Severe Neurasthenia Dependent upon Anemia. Isaac Mayhugh.

Southern Practitioner (Nashville, Tenn.), November.

129 *Legislation—Its Limitations in the Prevention of Disease and Crime. John Bell Keeble.
130 A Clinical Report on Gude's Peptomangan. Samuel Wolfe.

Hot Springs Medical Journal, November 15.

131 The Necessity of Exact Diagnosis in Certain Operative Prostatic Diseases. Louis E. Schmidt.
132 *Syphilis in the Innocent. J. B. Shelmire.

Texas Medical Journal, November.

133 *The Drug Habit: Its Treatment. M. K. Lott.
134 Camp Life for Consumptives. C. H. Wilkinson.

New England Medical Monthly (Danbury, Conn.), November.

135 Observations in Practical Surgery; Certain Questions on Procedure. Franklin Staples.
136 Some Notes on Tuberculosis. Arch. Dixon.
137 Re-amputation of Leg—Osteoclasis of Elbow—Sequestrotomy of Knee. Thomas H. Manley.
138 Two Cases of Bright's Disease and Their Treatment. C. H. Sangster.
139 The Health of the American Girl, as Imperiled by the Social Conditions of the Day. George J. Engelmann.
140 A Contribution to the Therapeutics of Pepto-mangan (Gude). Ludwig Pohl.
141 Collargolum and Unguentum Credé. Arthur De Voe.

Atlanta Journal-Record of Medicine, November.

142 Legislation and Its Limitations in the Prevention of Crime and Disease. John Bell Keeble.
143 *Heredity and Acquired Characteristics as Social Questions. R. R. Kime.
144 Anemia. Wm. Buchanan Conway.
145 *Continued Malarial Fever. J. R. G. Howell.
146 Rupture of the Choroid, with Report of a Case. Dunbar Roy.
147 The Fallibility of Scientific Evidence in Medical Jurisprudence. T. S. Hopkins.
148 Foreign Body in the Vagina. Carroll W. Downey.

Nashville Journal of Medicine and Surgery, October.

149 Acute Dysentery. A. E. Cox.

AMERICAN.

1. **The Tetanus Outbreak in St. Louis.**—The recent cases of tetanus following the use of antitoxin in St. Louis are discussed by Abbott, who notices the puzzling questions connected with them, especially as regards the origin of the infection. It is not easy fully to understand how the poison was introduced into the antitoxin, though neither the oxygen in the serum nor the antiseptic can certainly be said to destroy the possibly existing spores. But admitting this, the question arises: Were these originally introduced in sufficient numbers to account for the accident, or did they lie dormant in the serum until its injection into the susceptible human being? If the serum contained the bacilli or spores in such numbers as to have produced the disease, it most certainly would have developed in some of the very susceptible animals employed for the standardization of the antitoxic strength of the serum, but this, we are told, did not occur. So far as evidence will permit, Abbott thinks that the facts point more to a toxic origin for the accident, though there are obstacles to the establishment of this hypothesis. The question arises whether it is possible for the horse to give a serum in the incipient stages of the disease on August 24, when it succumbed only in the early part of October. We do not know the length of the incubation period of tetanus and can not positively say that it might not be five weeks in horses, though this is not the case in man. It is possible, he thinks, for a very small quantity of undesirable toxin to be introduced into the serum which might multiply in it and he thinks that so far as tetanus is concerned, however, the detection in such products as antitoxic sera is a matter of comparative simplicity. After the St. Louis experience, he would not regard anyone justified in distributing serum, until all doubt in the matter had been cleared away. This can be done in several ways: by very careful observation of the horse under treatment, by the occasional prophylactic use of tetanus antitoxin on the animal, by keeping the serum for a reasonable length of time after it is prepared and before it is distributed, the horse being under observation and, finally, by a special test directed to this point in which there is injected into a highly susceptible animal not the fraction of a dose used on human subjects, but the full human dose. If, after this, the animal exhibits no signs of tetanus, one is justified in assuming that the serum is free from anything capable of causing the disease. When we consider the thousands of injections that are annually admin-

istered with this very rare undesirable result, we must regard the deplorable accident of St. Louis as an exceptional one, which could not have been foreseen and might fall to the lot of any of us.

2. **The Bottini Operation.**—The cases of prostatic hypertrophy may be divided, according to Horwitz, into three groups: 1. Those in which the enlargement does not produce obstruction nor inconvenient symptoms. 2. Where there is a constant residual urine associated with disturbance of the function of urination and the patient is obliged to employ the catheter, but nevertheless requires no other treatment and may live to old age in comparative comfort. 3. Those who sooner or later suffer from what is called "the breakdown in catheter life," the catheter being used with great difficulty and pain and grave secondary complications being the result of the reduction of their resisting power, and loss of sleep. He believes that prostatic hypertrophy begins in early age, but that the obstructive symptoms do not appear until later when the growth has attained a considerable size. He reviews the history of the operation for this condition and especially remarks on the Bottini operation, which he thinks is the most successful method, attended by the greatest number of systematic cures and with the least mortality, viz., 4.5 to 7 per cent. The objections that have been made to it by various writers that it is uncertain and dangerous to perform, that the operation is done in the dark, that relief is but temporary, etc., he thinks are contradicted by the experiences of numerous observers. He has had thirty-six cases under his care and there was a tendency to recurrence of the obstructive symptoms in but three instances, making a second operation necessary. In each of these cases there was marked improvement in the physical condition. He is inclined to think that in the three cases the incisions were not made of sufficient length at the time of the first operation. This, however, is not serious as the operation is easily repeated and it is far better to do too little than too much. In the three years that have elapsed since his first operation there have been no complications of any kind in any case. In one case where he had the opportunity to perform a suprapubic cystotomy in a patient who had submitted to the Bottini operation seven months before, he found that all the obstruction had been removed and that there was a deep furrow in the median line of the middle lobe. Other evidences of this sort are noticed.

3.—See abstract in THE JOURNAL of September 14, p. 714.

4. **Intracranial Neoplasms.**—Pearce argues for the neuronic theory in explanation of brain tumors and their symptoms and believes that some form of electric energy is the cause of the continuation of life processes after birth and that the neuron theory accords with this. His argument is rather elaborate and can not be given in detail.

5. **Neurasthenia.**—Roberts describes the symptoms, causes, pathology, diagnosis, prognosis and treatment of neurasthenia. He lays special stress upon the disuse of anything like morphin, which he thinks has sent many of these unfortunates to death.

8. **Fertilization.**—The history of our knowledge of fertilization is first noticed by Gies with details as to Loeb's investigation, and in conclusion he reports his own experiments with enzymes. The chief experimental results of the work are given as follows: 1. Extracts of the spermatozoa of the sea-urchin, which have been made by the ordinary methods for the preparation of enzyme solutions, do not possess any power of causing proliferation of the ripe ovum. 2. No evidence could be furnished of the existence of a zymogen in spermatozoa. 3. Extracts of fertilized eggs, in the earlier stages of development, were likewise entirely devoid of segmental activity. 4. Enzyme seems to be excluded from the catalytic substances which Loeb and others have thought may influence the initial divisions of the ovum after the introduction of the spermatozoön, although it is possible that the conditions of these and previous experiments were unfavorable to the manifestation of activity on the part of fecundative ferment. It seems more probable, however, that Loeb's theory of the influence of spermatic ions in fertilization affords the true explanation of the phenomena in question.

10. **Tendon Transference and Arthrodesis in Infantile Paralysis.**—Three cases are first noticed by Bradford which illustrate the three methods of treatment, viz., mechanical, muscle and tendon transference, and the stiffening of the joint in cases of infantile paralysis. In the severest cases where all the muscles are affected, operative surgery seems to be useless. The application of an apparatus with the aid of a cane seems to be the only resource. When, however, as is more common, some muscle function remains, an advantage can be gained by the employment of non-paralyzed muscles. The muscles frequently left which retain some power are the sartorius, the adductor group, and the hamstrings. The transference of the sartorius to the rectus is a measure usually employed without difficulty, the only obstacle being the abnormal position of the sartorius, which is often nearer the hamstring at its lower attachment. A curved incision at the lower end of the femoral will bring to light the attachment of this muscle, which should be entirely freed, brought up and transplanted into the firm sheath of the extensor cruris. When it is found to be weak, the outer hamstring or adductor can be detached and brought forward, and inserted into the fascia and extensor cruris. Where the adductor group is completely paralyzed, the problem is difficult. Whether the transference of the glutei can in any way be accomplished to supplement adductors is uncertain, but may be possible, as is also the shortening of the paralyzed adductors that they may act as a cord to check extreme abductation. In paralytic disabilities of the knee where all the muscles are paralyzed, making transference impossible, arthrodesis is to be resorted to only where no mechanical treatment is possible. In paralysis of the muscles controlling the action of the feet, the combined employment of arthrodesis and tendon transference is of great value. Where all the muscles are paralyzed in the front of the foot, the tendo Achillis can be split and a portion transferred and attached to the paralyzed peroneus tertius or to the tibialis anticus, or both. The procedure is not difficult and is performed by making an oblique incision on the outer side of the leg, securing the tendon of the tibialis anticus and the peroneus tertius above the anterior annular ligament, following them well up to the muscular origin of the leg. A portion of the tendo Achillis is cut off and passed obliquely forward and stitched to both the cut tendons. Where the gastrocnemius is paralyzed, several procedures have been recommended, such as the insertion of the tibialis posticus and one of the peronei, or the splicing of the tendo Achillis; the latter has not proved of as great value as the other. Success in this operation depends not only on care in the performance, but also on the quality of the strength of the muscles which can not always be readily determined before operation. The peculiar anatomical condition of the foot must be considered. Tendon transference is of value for the purpose of preventing the dropping of the front of the foot, or where the muscles have been weakened. Where either the extensor proprius pollicis, anterior tibial, of peroneus tertius are unparalyzed, they can be transferred to either side and in this way give power for raising the front of the foot. Much will depend on the strength of the muscle and the length of the foot. If any of the muscles of the toes remain unparalyzed, it is possible to utilize the extensor communis digitorum by uniting a paralyzed anterior tibial or peroneal muscle or muscular fascia to the extensor communis digitorum. In this way in many cases the dropping of the front of the foot may be prevented. In many of the older cases distortion develops from the adapted shortening of the soft tissue. Valgus and varus deformities are established and aggravated by the abnormal strain brought on various portions of the bone. Here simple tendon transference is not sufficient to prevent relapse after a correction, and arthrodesis of the mid-tarsal articulation is of special value. This operation is easy. An external incision is made and the articulation between the os calcis and the cuboid laid bare, the peroneal tendons being pulled aside. The cartilaginous surfaces of the os calcis and the cuboid are

removed with a chisel and if any abnormality in the shape of the bone has taken place, this can be removed, as the incision can be enlarged or another incision made on the inner side, and the scaphoid and astragalus ankylosed in the same way. This, with proper correction, does not interfere with the up-and-down motion of the foot, but does interfere with the twist which it is desired to prevent. In cases without muscular strength of any of the muscles of the leg, front or back, an ankylosis between the tibia and the astragalus can be performed, but the advantage of this over a proper appliance is not manifest and the operation hardly recommends itself for this reason. A partial operation to strengthen the ligaments on either side of the ankle by shortening relaxed ligaments is of advantage. The percentage of complete success from these different procedures in a large number of cases is yet to be accurately determined by further clinical investigation. Where these measures have been carried out, benefit is evident in suitable cases and it is desirable to call attention to the advantage of a combination of arthrodesis and tendon transference, i. e., to the employment of one or both with or without suitable apparatus in proper cases, and to emphasize the fact that the surgeon has, in the management of this disability difficult of treatment, an opportunity for the employment of surgical judgment, anatomical and physiological knowledge, and the exercise of trained skill with the expectation that in a large percentage of cases benefit will follow his properly directed efforts.

13. **X-Ray in Sarcoma.**—Beck's article is a fully illustrated report of a case of sarcoma of the leg treated by the x-ray, which he thinks shows decidedly the influence of the x-ray on this disease. He thinks the danger of dermatitis, which is one of the risks of the strong application required, should not be regarded as having great weight in malignant cases. The fear of using the strong current may be responsible for the failures.

14. **Devitalized Air Toxemia.**—In this conclusion of his paper Denison argues for the need of better air supply in the building up of resistance to tuberculosis. He thinks tuberculosis is mainly a result of a common predisposition and that the medical profession has been trying to put the cart before the horse and has assumed an accompaniment to be a prime cause. What we should do is to determine the per capita need of air in ventilation in order that predisposition to tuberculosis may be prevented. If we could have an invention of an automatic deficient ventilation-indicator built into the side of the room to announce by sound or visible index the degree of deficiency, and if set at liberal gauge for purity and freshness of air it would help to eliminate tuberculosis from the earth.

15. **The Lane Lectures.**—In this tenth lecture Morris continues the subject of eczema in its various varieties in infancy, puberty, adult age, menopause an senility. The trade eruptions, mycosis fungoides, which has the appearance of eczema but is really one of the most formidable diseases in dermatology, psoriasis, pityriasis rubra, are described and also malignant diseases of the skin generally, including the one just mentioned; among these latter he merely mentions the ordinary skin cancers and sarcomas. The last condition which he describes is acanthosis nigricans, another rare disorder at present incurable.

18. **Blood Stains.**—Wood's article gives the detail technique of the examinations of blood stains for medicolegal purposes, the guaiacum and hemin chemical tests and the sodium tungstate test, microscopic examination and the agglutination test.

21. **Infection.**—Eisendrath points out the special modes of infection, illustrating it by the surgical anatomy of the hand and showing how tendon sheaths are special localities for the spread of the infection, and also points out the channels in which the suppuration follows in other parts; the difference between streptococcal and staphylococcal infection, methods of treatment, necessity of free incision, etc. He summarizes in conclusion as follows: 1. Ample incisions to lay bare every portion of the infected area, and counter incisions to relieve the collateral edema. 2. General anesthesia and a bloodless method of operating whenever possible. 3. The disinfection of an infected wound with strong antiseptics, etc., is of little avail, and may do great harm. 4. Most dependence should be placed on free drainage and moist dressings, with the use of mild antiseptics. No powder should be used until granulation is well established. 5. Absolute rest and elevation of the infected area. 6. After-treatment by secondary suture and early active and passive motion. 7. General treatment: strychnin, whisky and attention to the excretory organs.

22. **Otitis Media.**—The continuation of Funke's article gives a list of over 60 cases examined, and offers the following conclusions based on personal observation and a study of the literature: 1. There is no specific organism of otitis media. 2. Acute otitis media is not invariably mono-microbic as is commonly held. There may be but one organism, but with it are frequently found various associated bacteria more or less influential in the outcome of the case. 3. The organisms commonly found, in the order of their frequency, are pneumococcus, streptococcus, pyogenic staphylococcus, and the bacillus of Friedlaender. He is strongly inclined to believe in a definite grippal otitis due to the influenzal bacillus, which, however, quickly becomes associated with other organisms. 4. Diphtheria bacillus is more commonly present than is usually believed, either as an original infecting agent associated with streptococcus or pneumococcus or as a secondary infection carried to the already infected ear. 5. It is reasonable to believe, as his observations show, that it persists over varying periods of time in the discharges and may constitute a center of danger, as in its prolonged persistence in nasal localities, etc. Its frequent association with the bacillus pseudo-diphtheriæ has the same significance here as elsewhere—a factor not as yet fully determined. 6. The streptococcal infections are more serious and persistent than pure pneumococcal infections, but both are usually supplanted by the staphylococci sooner or later. 7. There is a true pneumobacillary otitis usually acute and quickly converted into a mixed infection. Its gravity depends on the character of the secondary infection. 8. Chronic suppurative otitis media is practically always a sequence of the acute. 9. Like the acute it possesses no specific organism. 10. Unlike the acute it is practically always polymicrobic. 11. Its polymicrobic character may be evinced in any of three ways: (*a*) A mixed infection of pathogenic organisms; (*b*) one or more recognized pathogenic organisms (usually pyogenic staphylococci) with one or more bacteria usually regarded as saprophytes; (*c*) The usual pyogenic and pathogenic bacteria are absent, and the discharges are maintained throughout by the activity of the organisms that commonly lead a saprophytic existence. 12. While anaërobic organisms may play an important part in chronic suppurative otitis media, Funke's observations have not established their constant presence as maintained by Rist. 13. The fetor met in the cases here reported can be explained by the presence of bacillus pyogenes fetidus without anaërobic organisms. 14. All clinical and collated bacteriologic data indicate that otitic inflammations present different bacteriologic findings in different localities. According to Moos the otitis complications of the influenza epidemic of 1890 were due to the pneumococcus in Vienna (Weichselbaum), and to the streptococcus in Strasburg, in Griefswald and in Bonn (Ribbert). 15. The literature establishes the existence of a primary tubercular otitis, but all observers agree as to the impossibility of routine demonstration of the bacillus in the discharge. 16. For the demonstration of the tubercle bacillus in suspected cases, he would recommend the examination of tissue obtained by the curette.

23. **Vaccination.**—The questions raised as to the efficiency of the different forms of vaccine lymph, glycerinated tubes, points, etc., are noticed and reviewed by Good, who argues in favor of the value of the glycerinated lymph and suggests a government commission to investigate the subject offering the following points as desirable for solution: 1. Does one attack

of smallpox give absolute immunity? If not, for what time is immunity accorded? 2. How soon after an attack of smallpox can vaccine vesicles be produced by careful vaccination with a good virus? 3. Should a person be considered not immune if, having had an efficient vaccination some few years before, a revaccination produces vaccinal possibilities? 4. The importance of carrying out control tests with one species of virus from four to six weeks after the original vaccine had apparently taken. 5. What kind of lymph is it most safe to rely upon, and what is the most approved technic?

27.—See also title 15, above.

28. **Migraine.**—Thomson's article is largely an argument for the autotoxic origin of migraine, more especially intestinal auto-intoxication. He says migraine is one of the penalties exacted for neglect of the means provided by Nature to assist the portal circulation and keep it free and active. The treatment which he recommends is largely dietetic and antiseptic, with special attention, of course, to elimination, etc.

29. **Ophthalmic Science and Art.**—Roosa's article is a review of the progress of ophthalmic science and art. He points out the importance of the ophthalmoscope as modified by Loring, the use of the ophthalmometer as left by Javal, advances in the treatment of trachoma, and myopia, the questions of strabismus in which the progress, he thinks, has been comparatively slow, and the satisfactory progress in the treatment of cataract and glaucoma.

30. **Private Charitable Institutions.**—The object of Stoddard's article, as he states, is to call the attention of the profession to the responsibility of medical officers in formulating and establishing well adjusted systems of education and training in institutions which have the care of the youth and adolescent and to the cultivation of the vast field of observation which, under systematic and combined effort, is capable of yielding a most valuable harvest of knowledge.

32. **Gastric Acids.**—The existence of hyperchlorhydria is doubted by Knapp, who offers the term organacidia gastrica as a substitute, the designation of the condition of the stomach due to the presence of large quantities of organic acids. He points out the importance, as it appears to him, of the search for butyric and acetic acid, and the value of a discovery which he has made as to the effect of butyric acid and monocalcium phosphate upon congo paper and upon dimethylamidoazobenzol. He describes his test for butyric and acetic acid, for the details of which the reader is referred to the original. The symptoms of organacidia gastrica, which he proposes to describe in a future article, are, he thinks, due to the presence of volatile organic acids, and the symptoms of hyperacidity are due to the presence of acid combinations together with volatile media, such as alcohol, aldehyde and acetone.

32. **Carbolic Acid Gangrene.**—After reporting a case, Sheldon discusses the condition and asks why it should occur in one case and not another, which he thinks is hard to explain. Levi's explanation for the fact that it more often follows dilute solutions than strong ones because of the failure to produce eschar is not, he thinks, satisfactory.

36. **Heroin.**—Ten cases of the employment of heroin, mostly cases of bronchitis, tuberculosis and Bright's disease, are reported by Wood, who finds that it has its decided advantages in chronic coughs and in no cases has he noticed any tendency to the formation of the heroin habit.

38. **The Railway Surgeon.**—Bishop gives the opinions of a lawyer as regards the duties of the railway surgeon, calling attention to their ethical side, especially in regard to the holding of communications sacred. The surgeon sent to see a patient and doing nothing more than simply examining and reporting on his case has no right whatever to use for the benefit of the railway company anything he may learn in treating the case or that may be communicated to him as a physician as regards the patient's history previously, etc., or anything other than the actual condition for which he examined him. He also advises the railway surgeon to absolutely ignore on the witness stand that he is employed by either party in the case.

39. **Tuberculosis Legislation.**—Glasgow protests against the proposed legislation in regard to tuberculosis in St. Louis requiring the disinfection of every case lasting over ninety days. He maintains that this measure would produce hardship, add greatly to the expenses of the patient or the city, and says that tuberculosis is not contagious in the ordinary sense of the word. If the health department is looking for contagious diseases to report, there is a class of contagious diseases, admitted by all to be contagious, which causes more misery and ill-health than consumption. Let it cause these to be reported and then regulate them. Fumigation such as is proposed moreover would be annoying and harmful to many suffering from tuberculosis and would cause more deaths than it would save lives.

42. **Medical Registration in Michigan.**—Harison gives an interesting history of the work of the Michigan Board of Registration, showing the thoroughness with which the law has been executed, and the economy of management, and gives his correspondence with a district attorney who does not consider the clause in the law stating that it shall be "the duty of the prosecuting attorney to prosecute violation of the law on information furnished by the records of the county clerk," as mandatory.

47. **Preputial Divulsion.**—Enright argues against the practice of circumcision for overgrown prepuce and favors the use of divulsion in all cases where there is not too great redundancy. He says, where the prepuce is narrow, divulse it, especially in children where the absence of a diseased condition is the rule.

50. **Genital Tuberculosis.**—After reporting and discussing a case, with an analysis of the literature, Young sums up the operative indications as follows: Epididymectomy with high resection of the vas deferens is the operation of choice. Castration should be confined to cases where the testicle proper is involved or the scrotal disease is extensive. Double castration, if possible, should be avoided, a portion at least of one testicle being left, even at the risk of local recurrence. Operations upon the seminal vesicles and prostate need be done only after the removal of the testicular foci has failed to arrest the progress of the disease in these organs, and it has spread to the bladder. Serious involvements of distant parts, pulmonary, urinary, osseous, etc., do not contra-indicate operation, especially since the more exact methods of using cocain have made general anesthesia unnecessary. The remarkable disappearance of extensive tuberculosis of the prostate seminal vesicles, bladder, kidneys, lungs, etc., that may follow removal of the testicle seems abundantly proven.

51. **Cervical Ribs.**—The case reported by Kammerer occurred in a woman aged 35, and apparently began in the left supra-clavicular region, producing pain and weakness in the arm which ceased for a time but afterwards returned. The *x*-ray revealed a cervical rib on that side with no evidence whatever of anything of the kind on the other side. The operation performed was the removal of a large portion of the bone and was followed by gradual improvement and almost complete recovery. He remarks in regard to the technique that no mention is made in the literature of difficulties, but he finds the operation is either very easy or rather difficult. In his case there was considerable embarrassment from the close proximity of important organs, arteries, etc.

54. **Acute Intestinal Obstruction.**—Three cases are reported by Hotchkiss following appendicitis and successfully operated on. He thinks that these indicate the great value of certain procedures under certain conditions. 1. The great utility as well as necessity of the free use of decinormal salt solution injections either subcutaneous or into the veins or rectum, both during and after the operation as a preventative of shock. In two or his cases the depression was so extreme that he thinks the patient could not have survived without this measure. 2. The great value of free incision into the over-

distended coils of gut; (*a*) in order to relieve upward pressure upon the diaphragm, and the disturbance of respiration and circulation dependent upon it; (*b*) to relieve the congested intestinal vessels and diminish the size of the enormously distended coils so that they may be handled without injury, the obstruction more easily dealt with and located, as well as to drain away from the interior of the gut a great quantity of stagnant fluid before it can reach the absorbing surfaces of the intestine below the obstruction. 3. The practicability and desirability of closing the abdominal wound without attempting to drain the peritoneum, and the leaving within the cavity sufficient saline solution to float the intestines and assist, perhaps, in their rearrangement. Measures which are essential in post-operative treatment are: 1. The persistent and intelligent use of the stomach tube with lavage. 2. The early and if necessary repeated administration of saline purges in concentrated solution and introduced through the stomach tube if they can be retained in no other way. 3. The use of the rectal tube for the relief of gas and the patient and persistent use of high enemata. These three measures patiently and intelligently employed with absolute abstention from morphin are the tripod on which rational and effective treatment is based, and on the intelligent use of which the life of the patient often absolutely depends.

56.—See abstract in THE JOURNAL, xxxvi, p. 711.

60.—Ibid, November 16, p. 1338.

61. **Complete Uterine Prolapse.**—Wiggin describes this condition as a reducible hernia through the pelvic floor, the sac being formed by the inverted vagina, containing besides the uterus, tubes and ovaries, a large portion of the small intestine, the bladder and rectum. It is caused by separation of the tendons of the muscles forming the pelvic floor where these unite in the median line, occurring usually during parturition. The malposition of the bowel is more or less increased by lifting heavy weights and by defecation, and perhaps is hastened by added weight of the small intestines which find their way to the lowest point. The complete form of this does not, as a rule, appear until late in life, but it causes much discomfort for many years before and the unsatisfactory permanent results of the various operations are due largely to the failure in recognizing the fact that the vaginal wall is practically a hernial sac with other contents than the uterus and appendages, and that consequently simple repair of the external perineal body, and the removal of a larger or smaller portion of the vaginal walls of the uterus itself would not correct the greatest trouble, malposition of the small intestines. The treatment requires, according to him, an operation to obliterate the hernial sac in the inverted and stretched vaginal wall and a restoration of the damaged perineal structures to their normal position as nearly as possible. His method is as follows: The patient is placed on a bed the end of which is raised six inches. Tampons moistened with glycozone are put in position. The parts are treated until all ulcerations are healed, the general condition being carefully looked after. A laparatomy is then performed in the Trendelenburg position to aid in drawing the bowels out of the way. They are usually found more or less attached to the peritoneal lining of the vaginal wall by adhesions which must be broken up. The uterus, which is usually small, is found and pulled upward by bullet forceps, thus drawing upward also the attached vaginal wall. When this has been accomplished a needle armed with kangaroo tendon is passed through the fibers of the uterus about the point of attachment to the round ligament, and is carried up and down the broad ligament in the form of a purse-string suture, the needle being finally made to emerge at the point of entrance, so that when the two ends of the sutures are drawn upon, the broad ligament on that side is forced up and drawn together so that the excessive length is done away with, and the uterus has a new point of attachment near the insertion of this ligament to the pelvic brim. The same process is repeated on the opposite side, the abdomen is flushed with saline solution, a quantity of which is left in, and the abdominal wound closed rapidly in the usual manner. The patient is again placed in a bed the foot of which is slightly raised, and after the wound has healed and the patient fully recovered, four or five weeks later, a new operation is performed to bring together the separated tendons of the perineal muscles with submucous sutures of catgut or kangaroo tendon. It will be found that at the time of the second operation, after the first one has been properly performed, that the redundant vaginal walls have practically disappeared. He has performed this a number of times in aged women and found it well borne, as it can be quickly done and involves no serious hemorrhage. Two cases are reported illustrating the results. He thinks spinal cocainization will perhaps be found particularly suited to this class of cases.

See also THE JOURNAL of November 16, p. 1338.

62.—See abstract in THE JOURNAL of November 9, p. 1266.

63.—Ibid. November 16, p. 1338.

64. **Concomitant Strabismus.**—Hubbell explains strabismus as primarily an abnormal condition of the oculo-motor nerve centers. There is no such thing as a muscle-shortening or elongation at its outset. Such conditions are the result, not the cause, of strabismus. By keeping this point in mind that it is primarily an abnormality of innervation—a vice of the controlling nerve centers—we should be saved from many errors of treatment.

65.—See abstract in THE JOURNAL of November 9, p. 1266.

66. **Milk Sugar.**—Jacobi's article is largely polemic, defending his recommendation of cane sugar in infant feeding against the criticisms of Huebner. He points out that the amount of milk-sugar in human milk varies at given periods and in different persons, and that laboratory combination tests of the theoretic preparation are not reliable. There are dangers of inordinate feeding with milk-sugar producing an excess of lactic acid. Among other things rickets has been thus explained by its chemical action.

67. **Adenoma of Both Adrenals in the Newborn.**—The interesting features of this case are summed up by the author as follows: 1. The presence of adenomatous hyperplasia in both adrenals, probably also in the left adrenal of Marchand, associated with retrograde changes in the right adrenal of Marchand, would suggest a congenital anomaly or defect in the development of the adrenal *anlage* from the Wolffian body. (The three-lobed left lung is also evidence of anomalous development.) 2. Suppression of the urine and death from uremia caused by toxic acute parenchymatous degeneration of the kidneys in this case. He describes the diagnosis of adrenal hemorrhage from adenoma and gives the following characteristics of the latter: 1. Absence of evidence of hemorrhage in or about the capsule. 2. The presence of a narrowing peripheral zone of apparently normal cortical tissue, beneath which there is usually a deep brown line separating the living and necrotic tissues. 3. The central portion composed of reddish-brown necrotic tissue without signs of extravasation or organization and showing on microscopic examination the remains of dead cells with blood-pigment in the capillaries between the cells.

72.—See abstract in THE JOURNAL of November 16, p. 1342.

74.—Ibid., p. 1341.

84. **Modern Methods in Country Practice.**—The elaborate paraphernalia recommended for diagnosis, etc., are remarked upon by Tonkin, who says that the country physician should be able to make all the more ordinary microscopic and chemical examinations of the blood, urine, pus and stomach contents. Any ordinarily intelligent patient can understand why the country physician could not make skiagraphs of fractures or thorough ophthalmoscopic examinations, but he would not understand the necessity of sending sputa, blood, or pus away for examination. The microscope is a necessary part of the physician's outfit and for sputum examination no other apparatus is necessary. Blood examinations are unnecessarily neglected. We do not require an exact count of the red and white cells. Any extensive leucocytosis may be at once detected by examining a thin film of blood under the ordinary

cover glass. Pernicious anemia is characterized by the striking variations in the size of the red cells and the presence of nucleated red cells of extensive size and by the tendency of all the colored cells to stain dark brown with eosin. Chorosis is differentiated by the red cells taking the red stain only slightly. The Hammerschlag's specific gravity method should be enough to estimate the hemoglobin and he gives the figures and the method. A chemical analysis of the stomach contents may not be required, but ordinarily the test meal can be used by the ordinary country doctor. He also describes a contrivance for intracellular infusion of saline solution which is easily devised, consisting of a pint or quart bottle with a two-holed rubber cork, one carrying a small glass funnel, the other a glass tube at right angles with the cork to which is fastened three or four feet of rubber tubing with a slim aspirating needle. Place some sterilized absorbent cotton in the mouth of the funnel to act as a filter, leaving the cork loose enough to permit of escape of air. When the bottle is full, fit the cork down tightly and pour the solution into the funnel until it runs from the needle, allowing it to run until the funnel is empty when the apparatus is ready for use. The saline solution can easily be made by putting 50 grains of pure salt to the pint of water. The rate of infusion should not exceed one ounce per minute for a patient weighing 135 pounds.

87. **Gastric Hyperacidity.**—This term, which is confused sometimes with hyperchlorhydria, implies simply an excess of acids whether due to total HCl., free HCl., acid salts or fermentation acids. Hyperchlorhydria is of more limited signification, implying a definite group of symptoms brought about only by an excess of free hydrochloric acid. Cowie has experimented on the stomach analyses of a large number of patients with different forms of insanity and offers evidences in favor of the neurosis theory and the theory of anatomical changes in the gastric mucosa. He reviews the relation of starch digestion to hyperchlorhydria, its frequency, which he finds much less than that of hyperacidity, its symptomatology and diagnosis. He thinks in all cases showing hyperchlorhydria it is of importance to recognize whether it is a functional neurosis or whether it is due to anatomic changes. In the absence of tissue bits we remain in uncertainty unless clinical symptoms point directly to a so-called nervous basis.

106. **The Arid and Semitropic Southwest.**—Betts' article is a description of the climatic features of Southern Utah, Arizona, and Southern California as compared with other western localities like Denver and Salt Lake City. He finds that there are many advantages in Salt Lake climate with its absence of extremes, and also in Southern Utah and portions of Arizona, which are not yet fuliy utilized by health seekers and physicians. He thinks the ideal climate for consumption is one which will stimulate the greatest possible outdoor life. Hence a mild, dry climate of moderate altitude, with a high percentage of sunshine, low wind rate and comparatively free from sources of tuberculous infection, best meets the requirements.

107.—See abstract in THE JOURNAL of July 13, p. 137.

114. **Somnambulism.**—The theory brought out here by Gasser is that there is a circulation in the nervous system of some sort which he thinks gives the only comprehensive interpretation of the facts of the functions of the organism in the various conditions of consciousness, etc.

115. **Unjust Food Laws.**—Randall argues for the use of formaldehyde in food preservation and disinfection, and thinks that the prohibition of its use may do more harm than good. He thinks that it is the one agent that will solve the harmless sterilization of milk, and quotes Foulerton in support of his view.

122. **Smallpox.**—Chapman, from his analysis of the facts, thinks that the three causes now operating over the country most likely causing the continuance of the present epidemic of smallpox are the following: 1. Mistaken or tardy diagnosis. 2. Failure to enforce quarantine. 3. Inattention to vaccination, either in the insertion of the virus or the lack of observation of the patient afterward.

127. **Postpartum Hemorrhage.**—After reporting several cases in his own experience, Jump says they have taught him in connection with what he has learned of the experience of others: 1. That there should always be plenty of hot water ready for use in case the delivery should require it. It is a good plan to add a little turpentine to the hot water when using it to control uterine hemorrhage. 2. Never again to administer quinin or any other drug for the purpose of hastening labor. He finds there are other physicians besides himself who consider quinin as the possible cause of postpartum hemorrhage. Another thing he never insists on is the patient's remaining in bed, nor does he care what position she gets into until it is time for the head to be delivered, and he makes as few examinations as possible. He finds that in slow labors if the patients will kneel on the floor and lay their heads upon the bed for a few minutes this position tends to relieve the parts and to induce strong pains. If he finds labor so tedious as to endanger the life of the baby or the health of the mother, he gives an anesthetic and uses forceps. 3. As a prophylaxis immediately on the termination of the second stage, he administers a teaspoonful of a mixture of one part of tincture of capsicum and ten parts fluid extract of ergot. This seems to produce a permanent contraction quicker than does ergot alone.

129.—See also title 142.

132. **Syphilis Insontium.**—Shelmire believes that syphilis contracted innocently is more common and important than is usually supposed, and reports several cases, all but one in physicians, in which it was thus acquired.

133. **Drug Habits.**—Lott recommends an apparently rather heroic method of treatment in morphinism by hydrobromate of hyoscin. He gives 1/100 of a grain and follows it by 1/200 of a grain from thirty minutes to an hour for from twenty-four to forty-eight hours, until the patient has taken from 40 to 60 doses, sometimes decreasing or omitting a dose, closely watching the pulse and respiration. The object is to secure hyoscin intoxication. When that is reached, as is shown by the restlessness, dilated pupils, dry throat, hallucinations, etc., he gives only enough to keep it up for from twenty-four to forty-eight hours. The patient is allowed water freely and is closely watched by the nurse, and if necessary a little dose of morphin may be given or strychnin, nitroglycerin or digitalis for the heart. At the end of the first stage of treatment the patient comes out from under the drug and no longer craves his usual dose, and then he begins the second stage with pilocarpin in 1/8 gr. doses, repeated every hour until its physiologic effect is secured. Then the time is lengthened between the doses, but they are kept up long enough to eliminate the drugs that have been stored in the body; in other words, until the last vestige of hyoscin symptoms has disappeared. There will be likely to be some diarrhea and pain in the knees, elbows, etc., and sometimes cramps. For these he gives subgallate of bismuth for the diarrhea and sometimes bromids or similar sedatives. Then under the stimulation of wholesome nutritious food at the end of a week, the patient begins to reach the normal condition.

142.—See also title 129, above.

143. **Heredity and Acquired Characters.**—Kime believes in the heredity of acquired characters and offers the following as a plausible, practical and consistent statement: "Acquired individual, permanent characteristics, produced through natural or perverted functions of the body become hereditary in character. The earlier in life such characteristics are acquired, the greater the tendency to transmission, and when carried through successive generations, tend to become permanent hereditary characteristics." He refers to various evidences in favor of this view, among them those of Talbot and Wolff on Jews, and as deductions from the above upholds the right of the State to interfere with whatever customs, etc., may lead to defective heredity. It is our duty to have proper legislation and registration to prevent the propagation of criminals, insane, inebriates and disease.

145. **Continued Malarial Fever.**—Under this name Howell describes a fever which may occur with or without chills, and

is slightly remittent in character, the pulse following the temperature and proving a valuable guide. If it does not come down with the temperature, it indicates that the disease is not progressing favorably. In rare instances the disorder may have a sudden onset. The tongue is atypical, the edges are red and the border has a light colored coat; the center is covered with a brown coating, and strawberry spots show on the white border. In the latter part of the disease the tongue becomes dry and cracks, and there is anorexia, constipation, scanty urine from the beginning with some albumin as the disease progresses, some headache and backache are present, not the photophobia or hebetude of typhoid. Physical examination shows an enlarged liver and hypertrophied spleen. After the seventh day there is usually tympanites throughout the abdominal cavity, but no rose spots are present. His treatment has been largely the use of calomel in the beginning with magnesium sulphate, giving quinin for four or five days and reducing it gradually or discontinuing it at the end of that period. When the quinin has been stopped, and sometimes before, he begins with a 4-ounce mixture composed of one-half ounce of dilute nitro-muriatic acid, and three and one-half ounces of elixir of lactopeptin, and gives one teaspoonful every four hours while the patient is awake, so long as the bowels are not too much irritated by it. He controls the fever with phenacetin in small doses and cold water. He uses a careful diet and specially recommends buttermilk and beef tea made with Mosquera's beef jelly. He does not express a positive opinion as to the nature of the disease.

FOREIGN.

British Medical Journal, November 9.

Prognosis in Relation to Disease of the Nervous System. JUDSON S. BURY.—Bury reviews some of the elements which he thinks essential factors in the determining of prognosis: 1. As regards the attacking agent, our knowledge of the various agents is too limited to help us much; a few points in the nervous system seem to be fairly certain; there is good evidence that irritation of the sensory nerve may lead to muscular atrophy, the absence of thyroid secretion seems to be the cause of impaired brain function in myxedema. We are daily acquiring more knowledge in regard to poisons producing nervous diseases such as alcohol, lead, arsenic, and those produced in the body. By analogy we reason the existence of action of other toxins. Two striking features may be noted, viz., the selective action of poisons and the immunity which is sometimes the direct result of that action. Syphilis is especially noted as regards both these points and it is remarked that since we have to speak with great caution about the course of disease or its production by this toxin of which we know so much, hence there is need of greater care in speaking of the action of poisons whose effects are known so little as those which we assume to be the exciting agents of such disorders as multiple sclerosis, Landry's paralysis and many other conditions. The prognosis in relation to the morbid anatomy is next considered. The mere size of the lesion appears to often have very little effect on the prognosis of the disease. Portions of the brain may be extensively damaged while other parts like the medulla afford very little space for any abnormal growths or disease without serious involvement. Lugaro claims that some parts of the nerve cells are more seriously involved than others, and that the lesion of chromatic substance is reparable while those of the other parts of the cell are less so, but Bury considers this statement in its fuliest application somewhat doubtful. The nature of the lesion is also hard to determine and he is inclined to believe that each poison has its own point of attack and that the earliest change in each disease has its own peculiarities unknown to us at present, but which if visible and thoroughly recognized would enable us to diagnose the condition and foretell its developments. The only manifestations of disease are symptoms, and how they are to be interpreted is a question; the difficulties are increased by the fact of idiosyncrasy. The sudden changes that may occur in serious nervous diseases like the brightening up, for instance, in tubercular meningitis which has been observed, and the temporary improvement from direct irritation in insanity are mentioned. The necessity for care in the forming of judgment is emphasized. He says it is difficult to understand how the ups and downs which are such marked features in the clinical history of chronic nervous disease can be explained on the hypothesis of primary progressive degeneration of neurons owing to exhaustion of their specific vital energy, and apart from the direct action of toxins circulating in the blood. Assuming that the poison is the most common exciting cause of nervous disorders, prognosis will vary with knowledge of the proper treatment for its elimination. In most cases we know neither the nature of the poison nor the method in which it is introduced into the circulation and treatment is purely empirical and often fails. We employ massage, baths, purgatives, alteratives, and place the patient under the best hygiene conditions and yet often without producing any immediate results. We need also remedies for counteracting the effects of poisons, and here we must hope for fresh discoveries regarding the effects of glandular extracts and the nature of toxins and their antitoxins. The influence of one disease upon another is worthy of renewed investigation; also further studies are necessary to establish the influence of one part of the nervous system on another, the value, for instance, of the sensory impulse in maintaining a proper nutrition of motor neurons as affording an explanation of the beneficial effects of massage, passive movements, and galvanism. Proof of this and other facts which may be derived from a study of the pathology and history of symptoms give us hope for the future and suggest that further study, clinical, pathological and chemical, will do much to improve the prognosis of many nervous disorders.

Local Treatment in Diseases of the Upper Air-Passages. SIR FELIX SEMON.—In this second lecture Semon takes up the local manifestations of general systemic diseases, particularly tuberculosis, and thinks that we should avoid as much as possible the word "cure" when speaking of the chances of treatment. In systemic disease the process is not purely local and though we relieve the manifestation we can not promise that the arrest will be a permanent one. Secondly, in no case is there greater need of individualization in treating disease on its own merits than in laryngeal tuberculosis, and the situation and extent of the local disorder will have to be carefully considered. If there is only infiltration without broken surface, he advises to leave matters alone. If there is ulceration the question of its situation and extent are of paramount importance and the local treatment will have to vary according to the amount of ulceration and its effects on diseased portions of the larynx. Sometimes energetic treatment will yield gratifying results in single ulcers, but no general rule can be laid down. In ulcers of the epiglottis, mucous membrane over the arytenoid cartilages and elsewhere, the difficulties are greater and treatment less satisfactory. Local treatment is legitimate and if intralaryngeal measures fail and dysphagia be excessive, or a subglottic ulceration spread to the posterior wall of the larynx, external operation may be considered. But the external wound in these cases is apt to become infected and a second extensive operation become necessary. Where the whole or nearly the whole of the mucous membrane of the larynx is one mass of ulceration with perichondritis and chondritis or caries, palliative measures alone are suitable and nothing has given him so much satisfaction as the insufflation of orthoform. The patient's general health and pulmonary condition are also to be taken into consideration. If local treatment is determined on it must be efficiently carried out. In syphilis of the larynx he has for a long time ceased to include local treatment as the routine measure in his methods. That means he does not exclude it, but would not make daily applications in addition to constitutional treatment, which last he relies upon. In affections of the upper air-passages due to disease of the central nervous system, he adheres to the use of electricity, especially in functional aphonia, and he also advocates prophylactic tracheotomy. In cases of bilateral well-developed paralysis of the abductors where suitable treatment fails in widening

of the glottic space, he would fully explain the situation to the medical adviser or the patient himself and his family and let them share the responsibility of the operation. In local manifestations depending upon local disease of the correlated areas Semon refers at length to the influence nowadays believed to be exercised by the state of the nose on inflammatory disease of the larynx and pharynx. While admitting this to a certain extent he thinks it is overestimated and the worst of it is that the theory is carried into practice, and useless nasal operations performed. In affections of the upper air-passages supposed to exert an influence on the other organs of the body, he says that the original sound principle has been hounded to death by being exaggerated. There is no doubt that there is a certain amount of influence, but the so-called nasal inadequacy has not the importance that is claimed for it. It is perfectly unintelligible to him how a slight degree of obstruction in the nose proper, especially on one side, can have such a distressing effect upon the middle ear which he has often seen ascribed to it. Unless the Eustachian tube is involved he sees but little possibility of ear trouble. He looks upon the endeavor to improve the labyrinth disease by removing a crest from the nasal septum with feeling much akin to those which animate him when he sees primary inflammations of the larynx treated by way of the nose. Nasal reflex neuroses are, he thinks, the most unsatisfactory subjects in modern medicine. The idea of the late Professor Hack has been exaggerated and carried to extremes by his followers. All that we can say is that in a number of cases physiologic reflexes are produced from the nose just as a reflex cough is sometimes produced from the external auditory meatus. The typical affection of nasal reflexes of the neuroses is hay fever, and the treatment of pathologic conditions of the nasal mucous membranes in many cases relieves it. Similarly, genuine bronchial asthmas are complicated by nasal polypi or may be relieved by removal of the latter. Hack's doctrine could never have obtained the popularity it has if there had not been something in it, but the mistake which his enthusiasm led him to make, has been exaggerated by his adherents and this is still being done. He tabulates the experience of various observers as to asthma and nasal irritations, and criticises severely Dr. Dundas Grant's views. The local symptoms and symptoms of obscure origin are noticed. The morbid readiness to discover disease, this desperate effort to find in every case and at any price a local explanation which has been in the ascendant of late years is, he believes, unsound, retrogressive, and greatly to be deprecated. We must keep in mind the necessity of proper proportion being observed between the gravity of the disease and that of the interference; the latter part of his article is a protest against the views and practices of certain authors.

Some Symptoms Produced by Tumors of the Optic Thalamus. J. MITCHELL CLARKE.—Clarke reports a case of brain tumor associated with marked intention tremor in the left arm and to a less degree in the leg, and involving the right optic thalamus, extending backwards and downwards into the subthalamic region, where it invaded the opposite side and pressed on the right internal capsule and the crura cerebri. It also involved the subthalamic region, red nucleus, aqueduct of Sylvius, and flattened and displaced the quadrigemina. Section showed degenerated tracts from the right hemisphere and well-marked and definite degeneration in the left cerebellar peduncle, which was not present on the right side. He thinks that the tremor especially occurring with tumors in the optic thalamus and those of the corpora quadrigemina and to a less degree the cerebellum, the balance of evidence is in favor of their being due to implication of the superior cerebellar peduncle, the course of events being that the tumor first affects the peduncle and later in the course of growth presses upon and more or less destroys the pyramidal tract in the internal capsule, crus or pons, and that thus the tremor appears first, but later disappears owing to the occurrence of more complete paralysis and of spastic contraction. Further investigation is required as to the implication of what special fibers of the superior cerebellar peduncle and tremor is due.

The Lancet, November 9.

The Personal Factor in Tuberculosis. DYCE DUCKWORTH.—The principal point in Duckworth's article is the identity of scrofula with tubercle and the individual predisposition of the patient. He maintains that we should pay due regard to the personal factor in tuberculosis and if we do this we will probably do more to avert the disorder from humanity than by any other course. Our modern pathologists discredit this too much and lay too much importance to the parasite itself. He also protests against too free estimation of cures in tuberculosis. The local disorder simply becomes quiescent and there may be recrudescence and relapse at any period during the patient's lifetime.

Freezing-Point of Blood and Secretions as an Aid to Prognosis. ALEXANDER OGSTON.—Ogston reports a number of cases in which cryoscopy was applied for diagnostic purposes and which, in his opinion, showed the value of the method. He thinks the high freezing point is probably a symptom of disease and the lower freezing point in some of his cases are purely owing to hepatic renal disease. It is his opinion that one of the most important fields of cryoscopy would be its power of indicating otherwise undetectable disease of the liver, at least in the practice of the operating surgeon.

The Sanatorium in the Treatment of Phthisis. T. CLIFFORD ALLBUTT.—The sanatorium treatment of tuberculosis is discussed by the writer, who sums up the chief questions he propounds in the following: "1. Can mixed infections be recognized from fever curves? 2. Can we distinguish between economical (*wirtschaftliche*) healing and complete (*wissenschaftliche*) healing? If so, what is the mean term of residence for the economical healing of early cases? How long in certain active cases, say from 6 to 8 per cent., is a febrile patient to be kept to bed in the reasonable hope of recovery? For instance, in a public sanatorium are we justified in retaining patients who have been confined to bed for six months, five months, or even for four months? 4. What estimates of improvement and what rules of prognosis can be based upon physical signs alone? 5. Is multiple tuberculosis, for instance, in lung and testicle too hopeless a condition for a public sanatorium? How far is it comparable with an equal extent of mischief in one organ? 6. Of what use, if any, is massage? 7. Of what use, if any, is hydrotherapy? 8. Are special pulmonary exercises appropriate at certain stages of progress; and if so, when, and under what conditions? 9. Must we repair the body at the expense of the life of the mind? Can we not give even some educational value to the sanatorium besides the medical drill of it?"

Archives Generales de Med. (Paris), August.

Pseudo-Neuralgic Variety of Rheumatic Spondylosis. H. FORESTIER.—There are three varieties of spondylosis, the ankylosing, simple and pseudo-neuralgic. The spine is more or less rigid in all three, but in the latter variety the patient stands erect, while there is marked stooping in the others. The pseudo-neuralgic pains are acute, lancinating and bilateral. Gonorrheal antecedents are liable to induce a tendency to ankylosis. A general douche-massage on a sloping table with two masseurs working on the spine is the final touchstone which differentiates the curable simple and pseudo-neuralgic spondylosis from the variety with ankylosis.

Diazo-Reaction in Typhoid Fever. E. SACQUEPEE.—The diazo-reaction was negative in only 17 of the 567 cases of typhoid fever which Sacquepée has collected, including 23 personal observations. Its final disappearance indicates speedy defervescence. It may vanish without warning at any time, but its persistence in spite of the downward temperature curve is an indication of some complication or of an associated disease such as peritonitis or tuberculosis.

September.

Diagnosis of Tuberculous Meningitis. MARCAN-MUTZNER.—Two cases are described showing that there may be mononucleosis of the cerebrospinal fluid in the absence of tuberculous meningitis, and that the latter may be accompanied by a polynucleosis.

Presse Medicale (Paris), October 23.

Gummatous Lesion in Frontal Lobe Simulating Lesion in Rolandic Region. G. DIEULAFOY.—A man of about 40, with a history of old syphilis but otherwise in good health, suddenly developed Jacksonian epilepsy in the night with other symptoms of a gummatous lesion so advanced that death ensued in a few days. The symptoms plainly localized the lesion in the region of Rolando but the autopsy disclosed that it was in the first convolution of the left frontal lobe. Lepine has witnessed three similar cases and Lowitz and Chipault have also published a case each in which the supposed site of the lesion was trephined. The region of Rolando was found intact and the autopsy later revealed the tumor in the frontal lobe. There were no peculiarities in the Jacksonian epilepsy in these cases to differentiate the frontal from the Rolandic type, but there is no record of the crural type of epilepsy in these frontal cases, and this may possibly prove a point to remember in the differentiation.

October 30.

To Avoid the By-Effects of Spinal Cocainization. GUINARD.—The water used in the solution of cocain is probably the cause of the headache, hyperthermia, etc., observed sometimes after spinal cocainization. Guinard has completely avoided all these by-effects by using the patient's own cerebrospinal fluid as the vehicle. He draws 60 to 80 drops of the fluid into a receptacle while 6 or 7 drops of a concentrated solution of cocain in the proportion of 1 cg. of cocain to 2 drops of water are automatically added to the cerebrospinal fluid as it flows. The mixture is aspirated into the syringe and reinjected into the subarachnoid space at once. Fifty operations performed under spinal cocainization by this method were not followed by a single post-cocainic incident in any case.

Four Cases of Tetanus Cured by Intracerebral Injections of Antitetanus Serum. LETOUX.—The conditions of success are early injection of as much as 20 c.c. of the serum for each hemisphere. Letoux injects it in the most prominent portion of the frontal eminence, with a needle 6 cm. long. The injection required seven to twenty-seven minutes. The serum does not cure the nerve cells already affected by the poison, but it protects the others against it. Subcutaneous injections have no action on the poison except as it is passing from the primary wound to the nervous axis. Consequently they are only useful as a preventive measure, while intracerebral injections are curative.

Compress Method of General Anesthesia by Ethyl Chlorid. A. MALHERBE.—Two to four grams of ethyl chlorid are poured on a compress which is then applied to exclude the air over the mouth and nose of the subject. Narcosis is complete in twenty to forty seconds, and lasts three or four minutes, with no stage of excitement. It can be prolonged by new applications of the chlorid, thus enabling operations of fifteen to twenty minutes to be performed with ease. For longer operations, Malherbe supplements the chlorid with chloroform.

Vaselin Subcutaneous Prothesis. DELANGRE.—Suppuration around the mass of paraffin was observed in 3 out of 17 cases in which paraffin had been injected into the tissues for cosmetic or utilitarian purposes. Among the cases cured by this means was one of vesico-vaginal and one of entero-vaginal fistula, and the restoration of a lower lip after extensive resection during the extirpation of a cancer.

Aid to Diagnosis of Cerebral Compression. VIDAL.—In the lack of any definite local symptom or anamnestic data on which to base the diagnosis, in a case of generalized epilepsy, Vidal had the patient inhale amyl nitrite. The intense congestion of the brain which it induces entails an epileptic seizure in such cases when there is any obstacle to the free expansion of the brain. In this case the immediate fulminating seizure confirmed the diagnosis of cerebral compression, and hemicraniectomy disclosed several tumors in the dura mater. Their ablation was followed by complete cure of the epileptic symptoms.

Surgical Diagnosis by Means of the Blood. T. TUFFIER.—During the last two years Tuffier has had the blood examined in 60 dubious cases to determine the existence of suppuration, tumors or internal hemorrhage, and he announces that information can thus be obtained, of the greatest value to the surgeon. In one case for instance, osteo-sarcoma had been diagnosed, but the blood indicated suppuration, and Tuffier followed the latter indication with success. In all cases of suppuration, irrespective of their extent or localization, the blood shows hyperleucocytosis of the polynuclears, with increased numbers of red corpuscles and diminution of the hemoglobin in them. In case of tumors of connective tissue origin, such as sarcomata, there is also a polynuclear hyperleucocytosis but much less extensive than in case of suppuration. In the latter the white corpuscles attain three and four times their normal proportion. In case of tumors of epithelial origin, the hyperleucocytosis involves the mononuclears, at least in the first stages of the neoplasm before it is complicated by infectious processes. This mononucleosis accompanying cancer is characterized by the decrease in the amount of hemoglobin contained in the red corpuscles, while the number of the latter is not diminished. In case of anemia from hemorrhage the total number of reds is diminished but their composition is unchanged. It is possible thus to differentiate a cancer from an ulcer of the stomach, and a cancer of the uterus from a hemorrhagic metritis. Equally important information can be derived by centrifugalization of the cerebrospinal fluid after a traumatism. The presence or absence of figured elements in the fluid will establish the existence or absence of an intrameningeal hemorrhage. In a number of dubious cases Tuffier found this measure a most important means of differentiation, otherwise impossible.

November 2.

Abdominal Surgery After Bullet Wound. REYNES.—A young man of 30 was shot in the abdomen and although the general condition was excellent, pulse and temperature normal, with no signs of hemorrhage or incipient peritonitis, laparotomy was done seven hours after the wound. Extensive hemorrhage was found proceeding from injured mesenteric arteries, and eleven perforations of the intestines with stercoral filtration. The anesthesia was done with A.C.E. and the operation lasted three hours. Recovery was smooth and rapid.

Semaine Medicale (Paris), October 23.

Treatment of Pannus with Radiating Heat. J. HAMBURGER.—The patient lies on the operating table. A few drops of a 3 per cent. solution of cocain are instilled and the eyeball held immovable by an assistant. The thermocautery is then approached close to the eye without actual contact with the tissues, thus submitting the pannus to the radiating heat. The vessels nourishing the pannus are then sectioned with the tip of the thermocautery and after instillation of atropin and insufflation of iodoform a light dressing is applied. The vascular injection rapidly disappears, the exudate is resorbed and the cornea regains its transparency.

October 30.

Ventroscopy During Operations by the Vaginal Route. DMITRI DE OTT announces that one of the great disadvantages of the vaginal route can be entirely obviated by using a small incandescent lamp no larger than a walnut, which can be introduced into the abdomen through the vagina. If the outer wall of the abdomen is seized with forceps near the umbilicus and lifted up, it is possible by the brilliant illumination afforded by the little lamp to see not only all the small pelvis, but the appendix, cecum and even parts of the stomach, liver and gall-bladder. The round ligaments and the posterior wall of the bladder are especially visible. The lamp can be permanently fastened inside the abdominal cavity by inserting it in the concavity of the retractor applied at the upper angle of the incision. By this means the light does not shine into the operator's eyes while the cavity below is brilliantly illuminated. The Trendelenburg position enables better oversight of the abdominal cavity. De Ott always tampons the opening between the vagina and the peritoneal cavity before raising the pelvis, in order to filter the air that rushes in as the intestines sink down toward the diaphragm.

Cure of Incontinence of Urine by Epidural Injection of Cocain. Albarran and Cathelin announce that they have succeeded in improving or actually curing fifteen patients of incontinence of urine by one to several injections of 1 c.c. of a 2 per cent. solution of cocain. The only two cases which resisted this treatment proved to be incontinence resulting from tuberculosis of the urinary organs. They also found that equally good results were obtained from the injection of 15 to 20 c.c. of artificial serum. A single injection was sufficient to cure nocturnal incontinence in three children.

Allg. Wien. Med. Zeitung, September 10.

Lavage of the Stomach for Nervous Vomiting. A. BENDERSKI.—A dozen and more cases are related all improved and a number permanently cured by rinsing out the stomach with warm water as a method of treatment for nervous vomiting. The benefit invariably derived should recommend lavage of the stomach as the first step always in such cases.

Berliner Klin. Wochenschrift, October 21.

Physostigmin as a Remedy for Paralysis of the Intestines. C. VON NOORDEN.—Veterinarians have long appreciated and utilized the alkaloid derived from the Calabar bean—eserin, as a means of inducing tetanic contraction of the relaxed intestine, with consequent anemia and evacuation of its contents. Physicians have always been timid in regard to it, and it has never been applied on man for this purpose although it has proved so successful in subcutaneous injections in horses, in experiments on animals and in ophthalmology. Von Noorden now reports five cases in which rapid action was necessary on account of threatening heart failure or other cause. One patient was a physician who had for years exhibited symptoms of a heart defect, controllable by digitalis. Eight days after a radical operation for inguinal hernia, extreme tympanites developed and the forcing up of the diaphragm interfered with the respiration and heart action. Physostigmin was administered three times during the day in 0.5 mg. doses. Flatus passed abundantly during the night and the abdomen was apparently normal the next day. In another patient the abdomen was distended by gas to a circumference of 84 cm. Prompt relief was obtained by administration of 0.75 mg. physostigmin four times during the day. The patient was a woman of 53. The results were equally prompt and satisfactory in two cases of typhoid fever. The physostigmin was given in the form of the salicylate, in a powder, rejecting every sample that had turned red. Atropin is an antidote to physostigmin. Fraser has reported that it will save animals after ingestion of 3.5 times the smallest fatal dose.

Subacute Weakness of the Heart in the Course of Cardiac Defects. C. A. EWALD.—A remarkable case is described only to be explained by the assumption that a long-existing cardiac defect—still in the stage of symptomless compensation—suddenly became complicated by a myocarditis. The heart action was intensely disturbed by this combination, but under the influence of heart tonics and sedatives, the removal of the obstacles to the peripheral circulation, possibly supplemented by an inherent tendency to recovery, the morbid process retrogressed without entailing any essential injury of the heart muscle. During the course of two years the condition of the patient grew constantly worse until it seemed absolutely hopeless. He had been kept under the influence of morphin for nine months, and the edema had required draining for three weeks. The sputum had been frequently hemorrhagic and of the color noted in case of thrombosis and embolism of the lungs. Recovery was rapid after it once commenced, and was complete except for the indications of the previously existing compensated cardiac defect.

October 28.

Influence of Retention of Bile on Secretory Functions of Stomach. S. SIMNITZKY.—This article reports the results of 81 examinations of the gastric functions in 7 cases of catarrhal icterus, 1 of Weil's disease with liver colic, 3 of hypertrophic cirrhosis of the liver and 1 of icterus from compression of the bile duct by a neoplasm in the pancreas. The research was conducted at Botkine's internal clinic and at Pavloff's laboratory of physiology at St. Petersburg. It conclusively demonstrated that the retention of bile increases the secretory functions of the stomach. Hyperacidity was evident in every case and it subsided parallel to the diminishing retention of bile. The hyperacidity was due almost exclusively to uncombined hydrochloric acid, showing an exaggeration of the secretion. As the retention of bile diminished, the chemistry of the stomach returned likewise to normal, while on the other hand, the hyperacidity returned with recurring retention of bile. Experiments on dogs confirmed these clinical findings. The secretion was increased both during the first and later hours after a meal, showing an exaggeration of both the "psychic" and the "chemical" secretion. He found in sixty tests on 3 dogs with gastric fistulæ made according to Pavloff's method, that the nature of the food had a certain influence on the secretion in case of artificially induced stasis of bile. After ingestion of milk the secretion increased 100 and 400 per cent. over the normal secretion in such circumstances. After a meal of cooked whites of egg it increased over 200 per cent., while the cooked yolks of egg caused an increase of 50 to 400 per cent., accompanied, however, by nausea, vomiting, thirst, diarrhea and loss of appetite. In normal conditions the amount of hydrochloric acid secreted varies very little during the hours after a meal, but in case of retention of bile the first intense hypersecretion rapidly diminishes after the first hours, indicating exhaustion of the glands after their first excessive activity. This is an important fact to bear in mind in treating such conditions, so as to avoid playing into the hand of the morbid process.

Centralblatt f. Bakteriologie (Jena), October 8.

Influence of Heat on Tubercle Bacilli in Milk. C. BARTHEL.—Tubercle bacilli in fresh milk can be killed by heating to 176 F. for even one moment. But the same heat applied to milk that had been standing until it was slightly sour, failed to kill the bacilli even in five minutes. In testing milk, therefore, the acidity of the samples should be that of normal milk in order to obtain results that can be compared.

October 15.

Bacteriology of Typhoid Pneumonia. A. DIEUDONNE.—Stuehlern has published two cases of typhoid lobar pneumonia and Dieudonné describes another. All were differentiated by the hemorrhagic character of the sputa. The typhoid bacilli were found in the sputa late into convalescence as in the case of plague pneumonia.

Centralblatt f. Gynaekologie (Leipsic), October 5.

The Eclampsia Question. K. A. HERZFELD.—In looking over the reports of 18,000 dissections at the Vienna Institute of Pathology during the last ten years, 81 cases of eclampsia were found. In 38 the record described indications of chronic nephritis, in 25 of parenchymatous degeneration of the kidneys and in 18 compression of both ureters. Compression of the ureters was observed in the majority of cases of eclampsia in primiparæ, first exhibited during the dilating stage with a fetus at term. In 32 out of the 81 cases a hemorrhagic hepatitis was mentioned, with compression of the ureters in 4; in 28 there was parenchymatous degeneration of liver and kidneys with likewise compression of the ureters in 4. In 21 cases no macroscopic alterations were noted in the liver but compression of the ureters had occurred in 10. Chronic Bright's disease with more or less severe changes in the heart was found in 46.6 per cent., bilateral compression of the ureters in 22.3 per cent. and acute nephritis, etc., in 31.1 per cent. The conclusion from these data seems evident that in the majority of cases of eclampsia there is an existing predisposition from some lesion or affection of the urinary system. This assumption is further sustained by the fact that the cases in which eclampsia appears in the early stages of pregnancy are considered the most severe. They are almost inevitably cases of pre-existing severe nephritic processes, an important point for the prognosis. Eclampsia is not a uremic process; it seems to be rather an intoxication of the maternal organism from the waste products of its own and the fetal metabolism.

Previously existing disturbance in the uropoietic system hinders the elimination of these waste products and favors their accumulation in the blood. Another fact noted by Herzfeld was that compression of the ureters had been noted in every case in which the eclampsia had commenced in a primipara at the dilating period of delivery. It was never found in a pluripara nor in a primipara in whom the eclampsia had commenced during the early stages of pregnancy or postpartum. Consequently, when in presence of a primipara in eclampsia, commencing during the dilating period of delivery, compression of the ureters and anuria can be assumed with almost certainty, and delivery should be hastened. Cesarean section is the most rapid and sparing means of delivery under these circumstances.

Plastic Method of Treating Vesico-Vaginal Fistula. N. WOLKOWITSCH.—Eight very extensive and practically inoperable cases of vesico-vaginal fistula were cured by mobilizing and drawing down the lower portion of the uterus and suturing the side of the cervix over the defect. The uterus has a tendency to rise and resume its former position with the exception that the anterior lip of the cervix is fastened a little lower than normally. The bladder was evacuated and irrigated through a very small high incision in a few of the cases. It was found that systematically repeated distension of the bladder proved successful in developing the faculty of retention.

Dermatologische Zeitschrift (Berlin), October.

Connection Between Tabes and Preceding Mercurial Treatment. NEISSER.—Only 53 per cent. of the cases of tabes observed by Neisser had received previous mercurial treatment. In 41 per cent. a single course of mercurial treatment had been followed, and several courses in only 5 per cent. These figures show the lack of any connection between preceding mercurial treatment and the development of tabes later.

Etiology of Eczema.—Bockhart, Bender and Gerlach presented communications on this subject at the recent Naturforscher Congress, describing their research and establishing that the staphylococci are frequently found numerous in the skin in health, collected in the follicles. The vesicles which develop over the follicles contain the germs from the first, and in a later stage the staphylococcus is found almost in a pure culture in all the vesicles. The staphylococcus produces two quite different toxins, staphyloplasmin and staphylotoxin. The staphylococci always induced impetigo in the numerous tests, while injection of the products of their metabolism invariably induced eczema. The inoculations were made by the scientists on themselves.

Roentgen Treatment of Hypertrichosis. HOLZKNECHT.—Permanently favorable results follow Roentgen treatment of hypertrichosis in elderly individuals with a close and heavy growth of hair. Young persons with a finer growth of hair are not treated by this method, as the benefits derived do not counterbalance the harm done by the atrophy of the skin.

Deutsche Med. Wochenschrift (Leipsic), October 31.

Functional Test of the Liver. H. STRAUSS.—The relations of the liver to processes of neutralization of poisons and to the combustion and utilization of albuminoids and carbohydrates have been studied at Senator's clinic during the last two years with a purpose to determine some simple clinical test of the functional activity of the liver by the composition of the urine. Eight patients with liver affections, after a test dinner, repeated twice, were given 20 gm. of sodium butyrate. Investigation of the urine afterward showed an increase in the elimination of volatile fatty acids in six cases. The two negative cases were one of carcinoma of the liver and one of occlusion of the common bile duct. The tests of the function of the liver in respect to the albuminoids were fruitless, but important results were obtained in respect to the metabolism of the carbohydrates. These tests were based on previous research conducted by Sachs under Strauss' directions, which demonstrated that frogs deprived of their livers were less tolerant to levulose than intact frogs. The subject was investigated thoroughly on 29 patients with liver affections and 58 presumably healthy persons. The test was the administration of 100 gm. of levulose fasting. The urine emitted during the four following hours was investigated by Trommer's, Selivanoff's and the fermentation tests and polarization. The results proved the existence of levulosuria in 90 per cent. of the liver patients, and in 10 per cent. of the 58 healthy subjects. It is possible that the latter included some cases of mild, latent liver affections responsible for the few positive results. This alimentary levulosuria appeared generally in the first and second hours, more rarely in the second and third, and amounted to a proportion of at least 1 per cent. of the total levulose which had been ingested. The three cases of liver affections in which the test was negative included one of atrophic cirrhosis of the liver accompanied by severe diarrhea, which possibly hindered the absorption of the levulose, and one of acute cholelithiasis. The conditions were evidently very different from those entailed by a chronic affection. The third was a cyst in the liver which had been stationary for nine years and ample compensation had probably developed. The results of this research establish that in levulose we possess a means by which we can test the functional capacity of the liver in a certain direction more effectively than by any other method known to date. The results are the more remarkable as we know that healthy subjects and also diabetics, tolerate levulose better than dextrose, and von Mering has demonstrated that dogs deprived of the pancreas are able to form glycogen out of levulose even after they have lost the faculty of forming it out of dextrose.

Elimination of Typhoid Bacilli in the Urine. SCHUEDER.—Typhoid bacilli may be eliminated in enormous quantities in the urine of typhoid fever patients. In 671 tests of the urine instituted by Schueder on 22 patients the bacilli were discovered in the urine in 22.7 per cent. Most of them were severe cases with complications on the part of the kidneys, indicated by albuminuria, but they were occasionally found in the milder forms. This elimination of bacilli through the urine may occur at any time during the disease or convalescence. The latter occurs most frequently and the bacilli can be detected in the urine weeks after final defervescence. Nineteen other writers have already reported similar findings and noted the coincidence of albuminuria. Their tests were positive in 177 out of 599 cases of typhoid fever. The urine, therefore, must be considered capable of imparting infection and also the water in which typhoid patients or convalescents bathe, as millions of bacteria may be discharged into the water if the patient happens to urinate during the bath.

New Standpoint for the Treatment of Albuminuria. EDEL.—Diuresis is promoted by improving the conditions of the circulation. This is proved by the increase after changing from the vertical position all day to the horizontal at night, by the lesser albuminuria in the afternoon and after the administration of diuretics, etc. All such factors promote diuresis by improving the conditions of the circulation, and the increased diuresis abolishes the albuminuria. Edel has been treating albuminuria on these principles, stimulating the circulation by mountain climbing and other physical exercises, supplemented by respiratory gymnastics, and has found this treatment very effective as an adjuvant in the cure of albuminuria.

Natural Means of Defense Against Angina in Scarlet Fever and Diphtheria. L. KUERT.—The movements of the muscles in swallowing are an effective aid in the defense of the throat against infectious processes. Kuert therefore recommends the sucking of candy, etc., as a preventive and curative measure in scarlet fever and diphtheria.

Jahrbuch f. Kinderheilkunde (Berlin), September.

Etiology of Chorea Minor. T. FROELICH.—In the history of 47 cases of chorea minor at Christiania acute rheumatism was noted in 31.9 per cent.; some other infectious disease in 8.5 per cent., and infection of an unknown nature in 34 per cent. No infectious antecedents could be discovered in 25.5

per cent. The girls outnumbered the boys by 39 to 8, and the manifestations of the affection were more pronounced in them.

October.

Inhalations of Oxygen for Children. E. HAGENBACH-BURCKHARDT.—Cyanosis is immediately relieved by inhalations of oxygen. It has proved so valuable in cases of diphtheric stenosis in the writer's experience at Basle that a large amount is kept in the diphtheria ward constantly ready for use. The general condition of the children usually improves rapidly after the relief of the cyanosis by the inhalations. It has been the means of saving life in certain cases and also in a few instances of heart disease in adults.

Mitteilungen a. d. Grenzgeb. (Jena), viii, 4 and 5.

Operative Treatment of Phlegmonous Meningitis. O. WITZEL.—The possibility of successful surgical intervention in cases of phlegmonous meningitis is demonstrated by Witzel's experience with four patients. Two were cured and two were improved but succumbed later to the recurrence of the meningitis. He found it necessary to resect the skull until sound arachnoid was reached. The phlegmonous process is liable to extend between the convolutions of the brain in a zone of cloudy infiltration. The entire process and the zones of infiltration should be covered with an absorbing and aspirating tampon. Even very extensive defects in the skull can easily be remedied by inserting a screen of silver wire in a secondary operation, as he has demonstrated again and again. The drawback of the necessity of this secondary intervention is but a trifle in comparison to the importance of success in the primary intervention. The tampon must be applied in such a way that its removal later will not mechanically injure the brain nor entail a breach in the wall of granulations around the meningeal space. He accomplished this by working a long strip of gauze between the dura and the surface of the brain, arranging it in concentric circles like a wreath about 4 cm. wide, around the edge of the gap in the bone, between the surface of the brain and the skull. A second, flat tampon is laid over the open space in the center. This is changed in a few days before granulations form. The wreath portion should be left undisturbed for about fourteen days. If it is twisted like a rope as it is being removed, it comes away without bringing any of the granulations with it.

Muenchener Med. Wochenschrift, October 29.

Development of Affections of the Organs After a Contusion. JORDAN.—This article was prepared at the request of the committee of organization of the recent Naturforscher Congress. The conclusions of the extensive investigations of the subject in various clinics, etc., are that a single contusion can be incriminated in the development of a tumor only in a very small percentage of cases. Only a minimal importance can be ascribed to trauma in case of carcinoma. Sarcoma occurs more frequently than carcinoma after traumatism, but the proportion is still very small. Preceding trauma to be a conclusive factor in the development of a tumor, must have been accurately observed by a physician and its topography recorded, and the tumor must correspond exactly to the site of the incriminated contusion. The interval between the time of the trauma and the development of the tumor must coincide with the period of evolution of the tumor. There must also be proof furnished that an incipient tumor had not already existed at the spot. As these conditions are rarely possible of realization, it is practically impossible to adduce clinical evidence in regard to the causal connection between the trauma and the tumor. The conditions are more favorable in case of surgical tuberculosis and a causal connection can be assumed when the injury is conclusively proven, when the lesion develops at the point of the contusion and when the first symptoms develop immediately after the injury or after a reasonable interval, not exceeding a few months. An unmistakable causal connection can be accepted when osteomyelitis develops at the point of the contusion immediately after the trauma, within a few days to two weeks at farthest. The myelitis may develop in a subacute or chronic form and the abscess may not appear for several months, but the first symptoms must develop within the first few weeks to denote any connection with the trauma. As the consequences of a slight contusion are transient, a long period of incubation for an osteomyelitis excludes the possibility of its dependence on the trauma. The question as to a causal connection between a contusion and appendicitis can be decided in the affirmative when the cecal region was involved in the traumatism and when the manifestations of appendicitis appear in an acute form in a previously healthy person, immediately after the trauma. In case the subject had had previous attacks of appendicitis, or symptoms in the right iliac fossa had indicated some chronic inflammatory changes in the appendix, fatal perforation following upon the contusion must be attributed to the trauma as the causal factor.

Therapeutische Monatshefte (Berlin), October.

Sea Air for Nervous Affections. IDE.—When sea air is ordered for a neurasthenic patient he usually rushes down to the seashore, spends all his time on the beach, frets more or less over the expense and returns after two or three weeks to make up by extra work for the brief holiday. The result is an exaggeration of the nervous trouble. The sea is too exciting for such patients at first. They should be gradually accustomed to the air and surroundings, but if these precautions are observed, there is nothing to compare with the effects of sea air in nervous affections. Its effect on the skin is like that of hydrotherapy, but it has the advantage of oxygenating the system at the same time. Ide advises that such patients should stay at a house some little distance from the beach, with quiet, sunny rooms sheltered from the wind. After thoroughly resting from the fatigue of the journey they should seek sheltered spots out of doors and after three or four days walk down to the beach several times a day, resting afterward each time, warmly covered. If there is little sleep or appetite the walks must be restricted and the patient should rest in bed several times a day or permanently. The sea air makes such demands on the metabolism that the stays on the beach should not be allowed to increase the metabolism beyond what the powers of digestion and assimilation are able to keep pace with. The patient should always rest for an hour before each of the principal meals of the day. As the strength increases four to six hours a day can be spent on the beach. Long trips and excursions should be carefully avoided. Ide's remarks apply more particularly to the resorts on the coast of the North Sea.

Treatment of Fever in Pulmonary Tuberculosis. A. MEYER.—A temperature of 37.3 C. (99 F.), is fever. A tuberculous patient with this temperature should go to bed and not get up again until he has been free from fever for three days. Meyer has known cases in which the patients stayed thus in bed for six months and more, and then regained complete health. Reclining is not sufficient. The patient must be actually in bed. He practices in the Riviera and advises his patients not to open their windows at night during inclement weather; fluid food as long as the temperature is over 38.3 C. (101 F.), as in case of fever from any cause, with several quarts of milk, raw eggs beaten up with wine, eggnog, etc., eight times a day with soups of all kinds, etc.; no antipyretics. Most hydrotherapeutic measures are too fatiguing, but a cold water bandage around chest and back is an excellent aid in reducing the fever.

Therapie der Gegenwart (Berlin), October.

Uric Deposits in the Body and Means of Dissolving Them. W. HIS, JR.—A drug to be effective in dissolving out the deposits of urates in the body must be able to form a combination with uric acid which is more readily soluble than the acid itself and its alkaline salts. It must pass unchanged through the body and exhibit its dissolving powers at the points where they are needed. It must be harmless even in protracted use. The alkaline salts and diamins have proved their inefficiency considered from this standpoint, but nuclein and thymus acid and formaldehyd have demonstrated that they are able to pass undecomposed through the organism and appear unchanged in the urine, where they form exceptionally soluble

compounds with the uric acid and glycocol. They have not yet been applied to dissolve gouty tophi and deposits in the joints. Stimulation of the circulation by local applications is the best method known to date for this purpose. Neither the alkalies nor the diamins have proved effective in this respect. Urotropin comes very near to fulfilling the conditions of the ideal drug to dissolve uric deposits as it gives off formaldehyd in the urine. But even as much as six grams are inadequate to fasten the total uric acid in the urine of a single day, much less to dissolve already formed concrements. Its dissolving power is unquestionable, but its action is too weak for practical results.

Buttermilk as Infant Food.—Salge and Heubner report that after extensive tests their experience has confirmed the assertions of the Dutch physicians in regard to the way in which healthy and sick infants thrive on buttermilk. It must be less than twenty-four hours old, made from sour cream, mixed with sugar and flour and brought to a boil three times. It represents 714 calories to the liter. The stools are very fine but scanty. The weight shows a regular upward curve. Salge found it especially beneficial as the first food after dyspepsia and acute intestinal disturbances, in atrophy, and for supplementing nursing.

Manipulative Treatment of Wry-Neck. LORENZ.—The bloodless method of treating deformities of the hip-joint, etc., which has made Lorenz's name so familiar, has been applied to the treatment of wry-neck with complete success in a number of cases he reported at the recent Naturforscher Congress.

Operative Treatment of the Lungs. GARRÉ.—The best results have been obtained in cases of echinococcus of the lungs —90 per cent. cured. Garré reports 18 cures in 22 patients with gangrene of the lungs, and 17 cures in 35 cases of bronchiectasis. Lenhartz has reported 4 successes in 4 cases of bronchiectasis and 11 in 23 of gangrene. The gangrene was nearly or quite total in the unsuccessful cases. Incision and drainage are mentioned in the 47 cases of surgery of the lung that have been reported.

Chlumsky's Absorbable Magnesium Button.—The new intestinal button is made of pure magnesium after the pattern of the Murphy button with some slight modifications. It remains unaltered in the intestines for four weeks except that the outer surface becomes softer. The inner part then dissolves in about 10 days and the remainder in 14 to 16. The dissolving can be hastened or retarded by making the button thinner or thicker.

Hospitalstidende (Copenhagen), September 25.

New Method of Differentiating and Treating Cancer. HOWITZ.—The success obtained by freezing the tissues in the treatment of ulcus molle and of lupus, suggested that it might be of use in the treatment of cancer. Howitz therefore experimented with it and found his anticipations more than fulfilled. He reports eight patients with cancer of the uterus and vagina and two with cancer of the breast, treated by first curetting away as much of the malignant growth as possible, and then spraying with ethyl chlorid. He found that sound tissues turn rapidly white under the spray while the cancerous masses show little if any change in color. By this means it is possible to differentiate malignant disease and locate the outer limits of its extension. After the cancer has been curetted the tissues turn white under the spray but much slower and less completely than in case of sound tissue. Rapid freezing of the tissues is therefore a favorable sign for the prognosis. In numbers of cases in Howitz's experience, the microscope has confirmed the non-malignant character of a suspicious neoplasm which turned promptly white under the spray. Copious suppuration follows the spraying, then the surface granulates and normal epithelium forms. After a carcinoma of the uterus has been sprayed in this way, the uterus, if fastened by adhesions from the affection in the parametrium, regains its movability, possibly owing to retrogression of some inflammation of the uterus. This fact may prove important as an indication for extirpation of the organ, as it indicates the possibility of a permanent cure after ablation. Menstruation returns more or less to normal, the patients gain in weight, partly from the removal or destruction of the malignant masses and partly from the superabundant feeding which he always institutes as part of the treatment. He makes an earnest appeal to physicians to test this simple, absolutely harmless, inexpensive and effective method of treating malignant disease. He first curettes thoroughly, and, if necessary, cauterizes with the Paquelin and tampons with gauze. After an interval of a few days he applies the freezing spray for one to five minutes, then rinses and dries the surface of the neoplasm. He repeats this refrigeration every third day at first, later with longer intervals. Whenever a suspicious patch appears he curettes anew. Recovery was impossible on account of the advanced stage of the cases in which he has tried the method to date, but the condition of the patients was immeasurably improved and life prolonged.

October 9.

New Points of View for Treatment of Intestinal Occlusion. SANDELIN.—Instead of seeking for the point of occlusion by bringing the intestines into the incision, Sandelin recommends making it large enough to insert the entire hand, and then feel around inside the abdominal cavity until the site of the trouble is found and the condition of the mesentery determined and straightened. When the site of the occlusion is found, the intestine can be brought up into the incision and treated as necessary. This internal palpation prevents the prolapse of any loop of the intestines and materially reduces the danger of collapse, paralysis and peritonitis.

Gazzetta Degli Ospedali (Milan), November 3.

The Blood in Tuberculosis. MIRCOLI.—It has been Mircoli's experience that tuberculous patients who expectorated blood were more easily cured than those who had no hemoptysis. He has also noted that in the early stage of tuberculosis there seems to be a tendency to hemorrhage outside of the respiratory passages, a kind of tuberculous hemophilia. He found in tests on man and animals that tuberculin diminishes the coagulability of the blood, but that 0.1 per cent. of Maragliano's antitoxin added to the tuberculin arrests this influence on the coagulability. The serum in the early stages of tuberculosis is very hemolytic.

Toxicity of the Excretions in Tuberculosis. SANTINI.—The pyogenic microbes play a prominent part in the toxic manifestations of tuberculosis, Santini has established by special research. This fact is a new proof of the importance of microbian associations in tuberculosis. Maragliano announces that he has succeeded in reproducing on animals lesions analogous to the tubercular in every respect, by means of the tubercle toxins alone.

Sodium Cacodylate in Tuberculosis. EVOLI reports that he has derived great benefit in pulmonary tuberculosis from the administration of sodium cacodylate. Maragliano has not found it any more effective than other preparations of arsenic or any substance which tends to increase the auto-defense of the organism, by stimulating the production of larger amounts of antitoxin.

Treatment of Tuberculosis by Nascent Iodin. A. CAVAZZANI.—The injection of an iodid into the blood of animals causes the generation of nascent iodin in the lungs when the animals are afterward forced to inhale the fumes of essential oil of turpentine. After thorough experimental confirmation of this fact, Cavazzani applied it to the treatment of pulmonary tuberculosis in the clinic, and now reports numerous complete cures from this nascent iodin method of treatment during ten years of experience. This simple and effective treatment has no inconveniences except that it requires months and sometimes a year or so before the cure is complete. Some of his patients have been completely cured for more than six years. He mentions that at first the symptoms become aggravated under this treatment. He applies it in both acute and chronic cases and has thus cured patients whose tuberculosis dated from several years.

The Heart in Chronic Deforming Rheumatism. RONCAGLIO.—Examination of thirty patients with chronic rheumatism, between 55 and 74 years old, showed endocarditic symptoms in only two, and in these the lesion was limited to the aortic ostium. This difference in its action on the heart is another proof in favor of the essential difference between acute articular rheumatism and the chronic variety.

New Patents.

Patents of interest to physicians, etc., November 5 and 12:

686,028. Catamenial sack. Adelaide Cortland, Pittsburg, Pa.
685,989. Seat for relieving piles. Peter Kendrick, Trenton, N. J.
685,894. Hot-water bag. Mortimer S. Williams, Newton, Mass.
686,578. Forceps. David F. Bowersox, Aaronsburg, Pa.
686,270. Inhaler. Wm. B. Dewees, Salina, Kan.
686,670. Dermal steaming apparatus for the head. Michael J. Fitzgerald, Boston.
686,281. Stomach pump. Waite Gerry, Ventura, Cal.
686,451. Hypodermic injector. Wm. M. Haynes, Sherman, N. Y.
686,616. Apparatus for testing strength and relative action of the external muscles of the eyes. Rudolph N. Johnquest, Ansonia, Conn.
686,332. Device for storing and administering serums. Herbert F. Prescott, Detroit, Mich.
686,338. Surgical safety appliance. Avery W. Ready, Jersey City, N. J.
686,535. Pocket eye-tester. Henry D. Reese, Abbeville, S. C.
686,638. Massage glove. Reuben E. Saffold, Rochester, N. Y.
686,425. Invalid lifting and moving device. Heinrich Sommerfeld, Canton, Kan.

The Public Service.

Army Changes.

Movements of Army Medical Officers under orders from the Adjutant-General's Office, Washington, D. C., Nov. 7-13, 1901, inclusive:

Walter K. Beatty, contract surgeon, from duty at the General Hospital, Presidio of San Francisco, Cal., to Fort Huachuca, Ariz., for post duty.

Perry Lee Boyer, lieutenant and asst.-surgeon, U. S. A., recently appointed, to proceed from Woodstock, Va., to Washington, D. C., reporting on arrival to Col. W. H. Forwood, president of the Faculty of the Army Medical School, for the prescribed course of instruction.

Alfred E. Bradley, captain and asst.-surgeon, U. S. A., from Fort Snelling, Minn., to Manila, P. I., via San Francisco, Cal., for assignment in the Division of the Philippines.

Peter J. A. Cleary, lieut.-col. and assistant surgeon-general, member of a promotion board at San Antonio, Tex.

Rudolph G. Ebert, major and surgeon, U. S. A., member of a promotion board at Vancouver Barracks, Wash.

Henry L. Gilchrist, lieutenant and asst.-surgeon, U. S. A., member of a promotion board at Vancouver Barracks, Wash.

Joseph B. Girard, lieut.-col., deputy surgeon-general, relieved from duty as chief surgeon, Department of the Columbia, and will proceed to Honolulu, H. I., to relieve Major Blair D. Taylor, surgeon, U. S. A.

James D. Glennan, major and surgeon, Vols., from the Division of the Philippines to San Francisco, Cal., reporting on arrival to the Adjutant-General of the Army for orders.

Herbert G. Gunn, contract surgeon, leave of absence from the Department of California extended.

Francis J. Ives, major and surgeon, U. S. A. (promoted from captain and asst.-surgeon, U. S. A.), to report in person to Col. Calvin DeWitt, assistant surgeon-general, president of the examining board convened at the Army Medical Museum Building, Washington, D. C., at such time as he may be requested by the board, for examination to determine his fitness for promotion, and upon the completion thereof to return to his proper station, or to the place of receipt by him of this order.

George W. Joan, lieutenant and asst.-surgeon, U. S. A., recently appointed and now at Danville, Ky., to Washington, D. C., for the course of instruction at the Army Medical School.

Frank R. Keefer, captain and asst.-surgeon, U. S. A., member of an examining board at Fort Monroe, Va., vice Capt. Alexander N. Stark, asst.-surgeon, U. S. A., relieved.

Franklin M. Kemp, captain and asst.-surgeon, U. S. A., former orders amended so as to direct him to proceed from the U. S. Military Academy, West Point, N. Y., to Manila, P. I., by the first available transport from New York City, N. Y., for assignment in the Division of the Philippines.

James S. Kennedy, captain and asst.-surgeon, U. S. Vols., from Fort Sam Houston, Tex., to Manila, P. I., via San Francisco, Cal., for duty in the Division of the Philippines.

Henry S. Kilbourne, major and surgeon, U. S. A., member of an examining board at San Francisco, Cal.

John S. Kulp, captain and asst.-surgeon, U. S. A., member of an examining board at the Army Building, New York City.

Clarence J. Manly, lieutenant and asst.-surgeon, U. S. A., from duty in the Philippines to San Francisco, Cal., reporting on arrival to the Adjutant-General of the Army for orders.

Charles F. Mason, captain and asst.-surgeon, U. S. A., member of a promotion board at San Antonio, Tex.

Raymond F. Metcalfe, lieutenant and asst.-surgeon, U. S. A., recently appointed, to proceed from Buffalo, N. Y., to Washington, D. C., to attend the session of the Army Medical School.

Robert M. O'Reilly, lieut.-col., and deputy surgeon-general, from Fort Monroe, Va., to San Francisco, Cal., for duty as chief surgeon, Department of California.

James M. Phalen, lieutenant and asst.-surgeon, U. S. A., recently appointed, to proceed from Chicago, Ill., to Washington, D. C., to attend the session of the Army Medical School.

Edwin W. Rich, lieutenant and asst.-surgeon, U. S. A., recently appointed, to proceed from Winthrop, Mass., to Fort Totten, N. Y., for duty at that post.

James F. Hall, lieutenant and asst.-surgeon, U. S. A., recently appointed, to proceed from Lowell, Mass., to Washington, D. C., to attend the session of the Army Medical School.

Allen M. Smith, captain and asst.-surgeon, U. S. A., from the Division of the Philippines to Baltimore, Md., as attending surgeon and examiner of recruits at that place.

Blair D. Taylor, major and surgeon, U. S. A., on being relieved from duty at Honolulu, H. I., by Lieut.-Col. J. B. Girard, will proceed to Fort Snelling, Minn., for post duty.

Frank H. Titus, major and surgeon, Vols., recently appointed and now at Portsmouth, Ohio, to proceed to Manila, P. I., via San Francisco, Cal., for duty in the Division of the Philippines.

Robert S. Woodson, captain and asst.-surgeon, U. S. A., from the Division of the Philippines to San Francisco, Cal., reporting on arrival to the Adjutant-General of the Army for orders.

Navy Changes.

Changes in the Medical Corps of the Navy for the week ended Nov. 16, 1901:

Pharmacist J. Cowan, ordered to the Boston Navy Yard.

Surgeon G. T. Smith, detached from the *Amphitrite*, and ordered to the *Puritan*, when commissioned.

P. A. Surgeon R. S. Blakeman, detached from the Naval Hospital, Norfolk, Va., and ordered to the *Hartford*.

Asst.-Surgeon E. G. Parker, detached from the *Hartford*, and ordered home to wait orders, upon reporting of relief.

Asst.-Surgeon W. L. Bell, detached from the Naval Hospital, Cavite, P. I., and ordered home to wait orders, when relieved.

Asst.-Surgeon L. W. Bishop, detached from the *Independence*, and ordered to Naval Hospital, Cavite, P. I.

Asst.-Surgeon H. C. Curl, detached from the Naval Hospital, Cavite, P. I., and ordered home to wait orders.

Asst.-Surgeon G. M. Mayers, detached from the Pensacola Navy Yard, and ordered to the Naval Hospital, Cavite, P. I.

P. A. Surgeon C. M. DeValin, detached from Naval Hospital, Portsmouth, N. H., and ordered to the *Rainbow*.

P. A. Surgeon S. G. Evans, ordered to the Naval Hospital, Portsmouth, N. H.

Asst.-Surgeon W. H. Bell, detached from the *Franklin*, and ordered to the Naval Hospital, Norfolk, Va.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, U. S. Marine-Hospital Service, during the week ended Nov. 16, 1901:

SMALLPOX—UNITED STATES.

California: San Francisco, Oct. 27-Nov. 3, 1 case.
Indiana: Evansville, Nov. 2-9, 2 cases.
Kansas: Wichita, Nov. 2-9, 1 case.
Louisiana: New Orleans, Nov. 2-9, 7 cases.
Massachusetts: Boston, Nov. 2-9, 22 cases, 3 deaths.
Michigan: Detroit, Oct. 27-Nov. 2, 1 case.
Nebraska: Omaha, Nov. 2-9, 4 cases; South Omaha, Nov. 1-8, 2 cases.
New Jersey: Nov. 2-9, Camden, 3 cases; Newark, 29 cases, 2 deaths.
New York: New York, Nov. 2-9, 10 cases, 1 death.
Ohio: Cincinnati, Nov. 1-8, 1 case.
Pennsylvania: Allegheny City, Nov. 2-9, 2 cases; New Castle, Oct. 1-31, 4 cases; Norristown, Nov. 2-9, 10 cases, 1 death; Philadelphia, Nov. 2-9, 72 cases, 8 deaths; Pittsburg, Nov. 2-9, 1 case.
Tennessee: Memphis, Nov. 2-9, 1 case.
Utah: Salt Lake City, Nov. 2-9, 2 cases.
Vermont: Burlington, Nov. 2-9, 1 case.
Wisconsin: Green Bay, Nov. 2-10, 1 case.

SMALLPOX—FOREIGN.

Austria: Prague, Oct. 19-26, 2 cases.
Belgium: Antwerp, Oct. 19-26, 3 cases; Ghent, Oct. 11-18, 2 deaths.
Brazil: Pernambuco, Sept. 6-30, 116 deaths; Rio de Janeiro, Sept. 15-Oct. 4, 205 deaths.
Canada: Nov. 2-9, Halifax, 7 cases; Quebec, 25 cases.
Colombia: Bocas del Toro, Oct. 22-29, 3 cases; Panama, Oct. 27-Nov. 6, 125 cases.
Egypt: Cairo, Oct. 7-14, 1 death.
Great Britain: Oct. 19-26, Liverpool, 1 death; London, 180 cases, 6 deaths
India: Madras, Oct. 5-11, 2 deaths.
Italy: Naples, Oct. 12-19, 31 cases, 1 death.
Russia: Moscow, Oct. 12-19, 4 cases, 4 deaths; Odessa, Oct. 19-26, 3 cases; St. Petersburg, Oct. 12-26, 4 cases.
West Indies: Curacao, Oct. 19-26, 4 cases, 1 death.

YELLOW FEVER.

Brazil: Rio de Janeiro, Sept. 15-Oct. 13, 11 deaths.
Mexico: Vera Cruz, Oct. 26-Nov. 2, 23 cases, 10 deaths.
India: Bombay, Oct. 8-15, 1 death; Calcutta, Oct. 5-12, 20 deaths; Madras, Oct. 5-11, 40 deaths.
Java: Batavia, Sept. 14-Oct. 5, 286 cases, 183 deaths.

PLAGUE—FOREIGN AND INSULAR.

Philippines: Manila, Sept. 7-28, 3 cases.
Brazil: Rio de Janeiro, Sept. 15-Oct. 13, 19 deaths.
India: Bombay, Oct. 8-15, 179 deaths; Calcutta, Oct. 5-12, 12 deaths.
Russia: Odessa, Nov. 10, present.